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of Transportation

**National Highway
Traffic Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

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ACCIDENT RESEARCH GROUP

Division of Arvin/Calspan
Buffalo, New York 14225

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-4

FLEET - 1991 GEO STORM GSi

LOCATION - [REDACTED]

ACCIDENT DATE - [REDACTED] 1991

Contract No. DTNH22-87-C-27169

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

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TECHNICAL REPORT STANDARD TITLE PAGE

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| 16. Abstract This on-site investigation focused on a 1991 Geo Storm GSi that was involved in multiple impact sequences with a W-beam guardrail and a concrete median barrier. The initial impact involved the right frontal area of the vehicle against the W-beam guardrail which resulted in deployment of the driver air bag system. The vehicle subsequently rotated across the roadway and impacted the concrete median barrier with its left side and left frontal areas. In response to the right frontal impact sequence, the driver initiated a forward trajectory, contacting the deploying air bag with his facial area. As a result of air bag contact, the driver sustained multiple abrasions and contusions (AIS-1) of the upper face and eyelid areas. The bag compressed his eyes which resulted in bilateral hyphemas, commotio-retinae and vitreous hemorrhage. The eye injuries, although not codeable under current OIC/AIS guidelines, resulted in a temporary vision impairment to the driver. He also sustained a diagonal contusion of the left upper chest from loading the shoulder belt webbing during the accident sequence. The driver was removed from the vehicle by rescue personnel and transported to a local hospital where he was admitted for treatment and observation of his eye injuries. | | | | | |
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CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-4

FLEET - 1991 GEO STORM GSi
LOCATION - [REDACTED]

SUMMARY

This on-site investigation focused on a 1991 Geo Storm GSi (rental car) that was involved in multiple impacts with a W-beam guardrail and a concrete median barrier. The accident occurred on a six-lane divided freeway in [REDACTED] HA, on [REDACTED] 1991 at [REDACTED] hours. The vehicle was rented and driven by a 25-year-old serviceman who was 72" in height and weighed 176 lbs. He rented the vehicle for a two day period and had driven the vehicle approximately 50-75 miles prior to the crash. The Geo Storm was equipped with a 4-speed automatic overdrive transmission and a Supplemental Inflatable Restraint System (driver air bag) which deployed during the accident sequence. Data for this case has been obtained from the inspection of the vehicle and the crash scene, police accident report, and interviews with the driver and the ophthalmologist who treated him for his injuries.

The Geo Storm was traveling in a westerly direction on the divided freeway. The driver stated that he had just entered the freeway and was in a hurry to return to his base. He accelerated the vehicle to approximately 60 mph (driver estimated speed) as he crossed the roadway to the inboard (left) travel lane. He passed an off-ramp and lost control of the vehicle as it entered a moderate right curve. The right front corner of the Geo Storm impacted a W-beam guardrail that paralleled the right roadedge. The 12 o'clock direction of force impact crushed the right corner of the front bumper to a depth of 3.75". The vehicle underwent a sufficient longitudinal deceleration to deploy the driver air bag system. The initial frontal impact redirected the vehicle in a counterclockwise direction as the right side area engaged with the guardrail resulting in minor sideswipe damage. The vehicle rotated across the roadway and impacted the concrete median barrier with the left side area. The impact sheared the left rear axle, thus separating the tire and wheel assembly from the vehicle. The left frontal area of the vehicle subsequently impacted the median barrier resulting in 3" of bumper crush. The vehicle yawed CCW following the left frontal impact before coming to rest on the inboard shoulder, facing in an easterly direction.

The driver air bag deployed at the initial right frontal impact sequence with the guardrail. The driver was wearing the active 3-point belt system and had the seat adjusted to the middle position. As the driver moved forward, he contacted the deploying air bag with his facial area resulting in contusions and abrasions of his forehead, eyebrow areas, nose, bridge of nose, and superficial contusions of the eyelids. He also sustained a left upper chest contusion from loading the shoulder belt webbing. The air bag contact resulted in a temporary loss of sight to the driver. The ophthalmologist who treated him stated that his eye injuries were uniquely bilateral and involved compression of the eyes. The driver, who was wearing soft contact lenses at the time of the crash, did

SUMMARY (CONT'D.)

not sustain direct contact injury to the eye. His contacts were removed at the hospital and were not damaged. His internal eye injuries involved hyphema of both eyes (hemorrhaging of the inner eye), commotio-retinae (disturbance of the retinas), and bilateral vitreous hemorrhage behind the iris in the jelly part of the lens.

The driver was held for observation and rest at [REDACTED] hospital for a 6-day period. He was treated with eye drops to dilate the pupils and [REDACTED], a medicine used to decrease the risk of further eye hemorrhaging.

The driver's vision has returned to 20/20 corrected, the same as it was pre-crash. His ophthalmologist stated that he has a 10% risk of developing Glaucoma in the future.

Accident Schematic

Case No. 91-4

Median Barrier
Contact Damage

Vehicle:

#1 - 1991 Geo Storm GSi

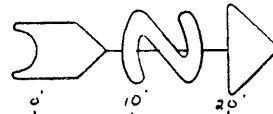
Concrete Wall

W- Beam Guardrail

Concrete Median Barrier

Overpass

Guardrail Damage



Scale 1"=20'

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-4

FLEET - 1991 GEO STORM GSi
LOCATION [REDACTED], HAWAII

ACCIDENT DATA

Location: Freeway
City/Township: [REDACTED]
Area/Type: Urban/Commercial
Accident Date/Time: [REDACTED] 1991, [REDACTED] hours
Investigating Police Agency: [REDACTED] Police
Accident Type: Car/Guardrail, frontal impact sequence
Air Bag Vehicle Occupant Injury Severity: Driver - Minor (AIS-1)

AMBIENCE

Viewing Conditions: Dark, lighted
Weather: Clear
Precipitation: None
Road Surface: Dry

HIGHWAY

Type: Freeway
Number of Lanes: 6, divided
Width: 36' (westbound travel lanes)
Surface: Asphalt
Median: Concrete median barrier
Edge: North edge - 4' paved shoulder
South edge - 4' paved shoulder


HIGHWAY (CONT'D.)

| | |
|------------------------------------|-------------------|
| Vertical Alignment: | Level |
| Horizontal Alignment: | Right curve |
| Estimated Coefficient of Friction: | .70 |
| Traffic Density: | Light to moderate |

TRAFFIC CONTROLS

| | |
|--------------|---|
| Signals: | None |
| Signs: | None |
| Markings: | Solid white north edgeline, dotted (raised) white lane lines, solid yellow south edgeline |
| Speed Limit: | 50 mph |

VEHICLE

| | |
|--------------------|--|
| Description: | 1991 Geo Storm GSi, 2 dr. hatchback |
| V.I.N.: |  |
| Color: | Red |
| Odometer: | 2,345 miles |
| Engine: | 4 cylinder, 1.6 liter |
| Transmission: | 4-speed automatic, console mounted transmission selector lever |
| Steering: | Power rack and pinion |
| Brakes: | Power assisted front disc, rear drum |
| Padding: | Upper and mid instrument panel, glove box door, knee bolster, soft edged steering wheel rim and module cover, adjustable head restraints, sunvisors, upper door panel, door armrests |
| Active Restraints: | 3-point lap and shoulder belts in the front and rear outboard seated positions |

VEHICLE (CONT'D.)

Passive Restraint: Driver side supplemental air bag system that deployed as a result of the initial right frontal impact sequence with the W-beam guardrail

Defects: None

Tow Status: Towed due to damage

VEHICLE DAMAGE

Exterior: The 1991 Geo Storm was involved in three separate impact sequences with a W-beam guardrail and a concrete median barrier. The vehicle's initial impact sequence, which deployed the driver air bag system, involved the front right area. Maximum frontal crush was 3.75" located at the right corner of the bumper. Direct contact damage began 3.875" right of center and extended 23.5" laterally to the right front bumper corner. The induced and direct contact damage (Field L) began 1.125" right of center and extended 22.25" to the right front bumper corner. (Direct contact damage was measured along the damaged profile while the Field L was measured parallel to the measurement reference line.) Crush values at the bumper reinforcement level were as follows: $C_1=0.0$, $C_2=0.0$, $C_3=0.1$ ", $C_4=0.7$ ", $C_5=2.25$ ", $C_6=3.75$ ".

As the vehicle crushed against the guardrail, it was subsequently redirected in a counterclockwise direction. The right side of the vehicle engaged with the guardrail resulting in sideswipe type damage to the entire right side. Maximum crush to the side surface was 2.125" located at the trailing edge of the right quarter panel at the rear bumper fascia juncture.

The Geo Storm rotated in a CCW direction as it separated from the guardrail and crossed the westbound travel lanes. The left quarter panel area of the vehicle subsequently impacted an angled section of the concrete median barrier resulting in sideswipe type damage to the vehicle. The left rear tire contacted the barrier which sheared the axle on the inboard side of the outer rear wheel bearing. As a result, the tire/wheel and brake drum assembly separated from the vehicle. Although the tire and wheel assembly was not with the vehicle at the time of our inspection, the force load to the tire was both longitudinal and lateral. The left rear suspension components were displaced 1" rearward and the backer plate assembly for the drum brakes was canted inward at the bottom edge.

Body damage to the left side of the vehicle was minor. Maximum crush was 2.0", located at the trailing edge of the quarter panel at its juncture with the rear bumper fascia.

VEHICLE DAMAGE (CONT'D.)

Exterior (Cont'd.):

Direct contact damage began 3.25" forward of the leading edge of the door and extended 107" rearward to the rear bumper corner. The sideswipe type impact resulted in minor body damage with crush values as follows: $C_1=2.0"$, $C_2=0.1"$, $C_3=0.1"$, $C_4=0.1"$, $C_5=0.1"$, $C_6=0.1"$. Components damaged by the impact involved the left front fender, left rocker panel and corner panel, the lower outer skin of the left rear quarter panel, left rear axle assembly, and the rear bumper fascia.

The left frontal area of the vehicle subsequently impacted the concrete median barrier resulting in 3" of bumper crush at the left corner. Direct contact damage began 1.1" right of the vehicle's center line and extended 28.1" to the left corner. Crush values at the bumper reinforcement level were as follows: $C_1=3.0"$, $C_2=1.6"$, $C_3=0.8"$, $C_4=0.2"$, $C_5=0"$, $C_6=0"$. The frontal impact sequences crushed the corners of the bumper and bowed the center outward resulting in negative crush values. The left front tire engaged with the concrete median barrier resulting in minor damage to the wheel and an airout of the left front tire. As a result of the contact, the left front axle position was displaced 4.6" rearward.

CDC:

Event Number

Object Struck

| | | |
|---|-----------|-------------------------|
| 1 | 12-FZEW-1 | W-beam guardrail |
| 2 | 11-LZES-1 | Concrete median barrier |
| 3 | 12-FYEW-1 | Concrete median barrier |

Repair Cost:

Total loss

Interior:

The interior of the Geo Storm GSi was slightly reduced in size by intrusion of the left toe pan and side panel that was located forward of the A-pillar. Rearward displacement of the left front tire resulted in 3.75" of rearward intrusion of the toe pan and approximately 4" of lateral intrusion of the side panel. The left front floor pan was distorted under the driver's seat which jammed the seat tracks of the driver's seat. The seat was adjusted to and jammed at the middle position.

The driver contacted the deployed air bag and loaded the active 3-point belt webbing during the crash sequence. There was no evidence of occupant contact to the knee bolster, steering assembly (no shear capsule compression), windshield, or sunvisor. His contact with the air bag did not produce contact evidence (i.e. tissue transfers, skin oil transfers, etc.). His loading force on the belt webbing resulted in an abrasion on the plastic coated B-pillar mounted D-ring. The

VEHICLE DAMAGE (CONT'D.)

Interior
(Cont'd.):

abrasion was located on the forward edge of the D-ring and occurred as the belt webbing loaded against the ring. There were no matching transfers on the belt webbing. The latchplate was equipped with a cinch bar which held the latchplate firmly against the belt webbing. The latchplate was found set to a point on the belt webbing that was 38.75" above the floor mounted anchor (slide bar). At this adjustment point and with the seat jammed to the middle position, the belt when buckled, was a proper fit for an occupant.

The center instrument panel and console area was broken by vandals who attempted to remove the radio from the vehicle. The associated damage was not crash-related.

COLLISION SEQUENCE

Pre-Crash:

The Geo Storm was traveling in a westerly direction on the divided expressway as it approached the accident scene. The driver stated that he had just entered the expressway and was in a hurry to return to his military base. He accelerated the vehicle to approximately 60 mph as he initiated a lane change maneuver from the outboard (right) lane to the inboard travel lane. The driver lost control of the vehicle during the lane change maneuver and as the vehicle entered a right curve. The Geo Storm crossed the outboard travel lane and departed the right shoulder.

Crash:

The right frontal area of the vehicle impacted a W-beam guardrail system that protected traffic from a concrete bridge support. The guardrail consisted of two w-beams mounted in a stacked sequence to strong steel I-beam posts with I-beam blackouts between the rail and the post. The guardrail was in poor condition, having been struck previously by other vehicles.

The Geo impacted the guardrail at a shallow angle estimated at approximately 15-20°. There was no physical evidence on the roadway (i.e., skid marks) to support the exact orientation of the vehicle at impact. Initial contact involved the right front bumper corner and the headlamp area of the vehicle. The 12 o'clock direction of force impact crushed the bumper to a maximum depth of 3.75" and resulted in a sufficient velocity change to deploy the vehicle's driver air bag system.

The vehicle then crushed the guardrail to a maximum depth of 15" as the guardrail redirected the vehicle in a counterclockwise direction. Subsequently, the right side of the vehicle engaged with the guardrail resulting in a continuous impact sequence. Damage to the right side was minor with a maximum crush value of 2.1" located at the trailing edge of the quarter panel. The vehicle separated from the guardrail rotating in a counterclockwise direction. Contact damage to the guardrail (red paint transfers and deformation) was continuous for 45'11".

COLLISION SEQUENCE (CONT'D.)

Crash
(Cont'd.): The Geo Storm rotated in a counterclockwise direction as it separated from the struck guardrail and crossed the westbound travel lanes. The vehicle rotated approximately 330° CCW before impacting an angled section of the concrete median barrier 92' west of its departure point from the guardrail. The left side area of the vehicle impacted the median barrier which fractured the left rear axle, thus separating the left rear tire/wheel and brake drum from the vehicle. The vehicle yawed CCW as the left frontal area engaged with the barrier resulting in a 12 o'clock impact force.

The vehicle reportedly continued in a CCW orientation before coming to rest on the inboard shoulder of the roadway, facing in an easterly direction.

Post-Crash:

Final Rest - The vehicle came to rest on the inboard (south) shoulder parallel to the concrete median barrier. At rest, the vehicle was facing in an easterly direction, 180° opposite of its initial travel path.

Driver
Activities - The driver, who stated that he had an immediate loss of vision following the crash, remained in the vehicle. He did not know where the car had come to rest and was concerned about being struck by another vehicle.

Police
Activities - The police were notified of the crash by an anonymous caller at [REDACTED] hours and immediately dispatched a police vehicle and an ambulance. The police officer arrived at the scene at [REDACTED] hours and initiated his investigation.

Rescue
Activities - [REDACTED] arrived on the scene several minutes prior to the police and immediately attended to the driver in the vehicle. They removed him from the vehicle and placed him in the ambulance. He was subsequently transported to a [REDACTED] hospital where he was admitted for treatment of his eye injuries.

Scene
Clearance - Following the police officer's on-scene investigation, the vehicle was towed from the accident scene.

HUMAN FACTOR/OCCUPANT DATA

Driver: 25 year old male

Height: 72"

Weight: 176 lbs.

Occupation: [REDACTED]

Active Restraint
System Usage: 3-point lap and shoulder
 belt system

HUMAN FACTOR/OCCUPANT DATA (CONT'D.)

| | |
|----------------------------|--|
| Usage Source: | Driver injury, driver interview, vehicle inspection, police report |
| Eyewear: | Driver was wearing soft contact lenses at the time of the crash; lenses were removed at the hospital and were not damaged. Driver currently wears same lenses. |
| Vehicle Familiarity: | 1 day, rented vehicle early in day for weekend use |
| Route Familiarity: | Has driven on freeway numerous times over a 1 year period |
| Trip Plan: | Returning to base |
| Manner of Leaving Scene: | Ambulance to a [REDACTED] hospital |
| Type of Medical Treatment: | Admitted for 6 days for treatment of his eye injuries and observation |

DRIVER INJURIES

| <u>Injury</u> | <u>Severity (OIC/AIS)</u> | <u>Source</u> |
|--|----------------------------|-----------------------|
| Bilateral hyphema of the eyes (hemorrhaging of the inner eye) | N/A, not a codeable injury | Air bag |
| Comotio-retinae of both eyes (disturbance of the retinas from eye compression) | N/A, not a codeable injury | Air bag |
| Bilateral vitreous hemorrhage behind the iris in the jelly part of the eye | N/A, not a codeable injury | Air bag |
| Small contusions of the forehead and eyebrow areas | Minor (FSCI-1) | Air bag |
| Small abrasions of the forehead and eyebrow areas | Minor (FSAI-1) | Air bag |
| Small contusions of the nose and bridge of the nose | Minor (FCCI-1) | Air bag |
| Small abrasions of the nose and bridge of the nose | Minor (FCAI-1) | Air bag |
| Contusions of both upper eyelids | Minor (FLCO-1, FRCO-1) | Air bag |
| Contusion of the left chest, distal to the shoulder | Minor (CLCI-1) | Shoulder belt webbing |

DRIVER KINEMATICS

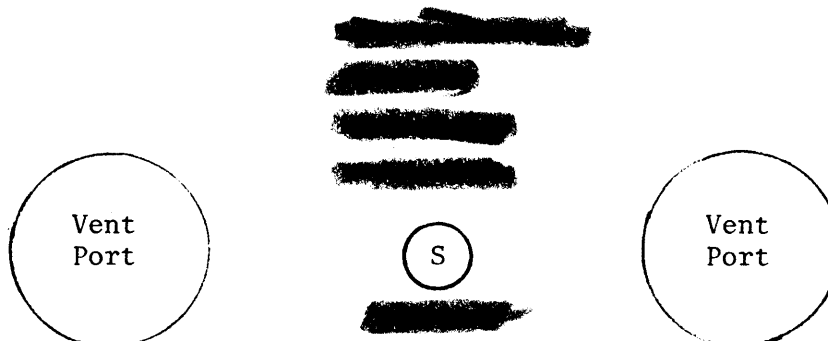
The driver of the Geo Storm was probably in a normal seated position at impact with the W-beam guardrail as evidenced by his contact sequence with the deployed air bag. His seat was adjusted to the center position with the seatback set to a slightly reclined adjustment point. The driver was wearing the active 3-point lap and shoulder belt system. Belt usage was determined from driver interview data, the police report (coded box F) and from evidence found on the belt system. The cinch bar equipped latchplate was found adjusted to a point on the shoulder belt webbing that was 38.75" above the floor mounted anchor. With the belt extended and buckled across the left front seat (LF seat tracks were jammed at middle adjustment point), the webbing adjustments for both the lap and shoulder belts exhibited a proper fit for the driver. Although there was loading evidence on the belt webbing, the B-pillar mounted D-ring was abraded at the forward edge from driver loading against the shoulder belt webbing.

As the vehicle impacted the W-beam guardrail, the driver initiated a forward trajectory as the driver air bag system deployed. The bag initially contacted the driver's face as it deployed resulting in small contusions and abrasions to the forehead and eyebrow areas and also to the bridge of the nose. The driver also sustained contusions to the upper eyelids from air bag contact, which indicates that his eyes were closed. The closed eyelids protected his eyes and soft contact lenses from direct contact with the bag; however, the force of the bag compressed the eye. As a result of eye disturbance, the driver sustained bilateral hyphema of the eyes, commotio-retinae of both eyes, and bilateral vitreous hemorrhage behind the iris in the jelly part of the eye. As a result of the eye injuries, the driver sustained immediate and temporary loss of sight.

The driver subsequently loaded the active belt system as he moved forward in response to the frontal impact sequence. His loading force against the shoulder belt webbing resulted in a contusion of the left chest, distal to the shoulder. He probably loaded the belt system again as the vehicle crossed the travel lanes and impacted the median barrier. During this time frame, the air bag would have deflated and offered little or no protection to the driver.

AIR BAG SYSTEM

The vehicle was equipped with a driver air bag system that deployed as a result of a right frontal impact sequence with a W-beam guardrail system. The air bag was manufactured by [REDACTED] and was stamped with the following identification numbers:



AIR BAG SYSTEM (CONT'D.)

The air bag was not damaged during the accident sequence and did not yield evidence of occupant contact. The bag measured approximately 23.5" in diameter in its deflated, post-crash state. The air bag was vented by two ports located on the back side of the bag (away from the driver). The 1.75" diameter ports were located at the 11:30 and 1:30 o'clock positions. The bag contained 6 internal tether straps that were affixed to a 7.5" diameter reinforcement sewn to the center of the bag.

At the time of [REDACTED] on-site inspection that occurred approximately 6 weeks post-crash, the bag contained 5 horizontal fold creases and 4 faint vertical fold creases. The orientation of the fold points were referenced to the bag as the steering wheel was rotated approximately 100° in a counterclockwise direction.

SELECTED PRINTS

Pre-Crash Travel Of The Geo Storm.

Initial Right Front Guardrail Impact That Deployed The
Vehicle's Driver Air Bag System.

Vehicle Crosses Roadway And Impacts Concrete Median Barrier.



Initial Guardrail Impact Damage To The Front Right Corner Area
(Air Bag Deployment Impact Damage).



Closeup View Of The Frontal Contact Damage.



Perpendicular View Of The Right Frontal Area.



Subsequent Contact Damage Along The Right Side Of The Vehicle.



Median Barrier Impact Damage To The Left Frontal Area.



Perpendicular View Of The Left Frontal Damage.



Left Side View Of The Geo Storm.



Left Rear Axle Fractured Resulting In Tire And Wheel Separation
From Contact With The Median Barrier.



Left Rear Three-Quarter View.



Overall Interior View Of The Driver's Seated Position,
Active Belt Webbing, And The Deployed Air Bag.



Found Adjustment Point Of The Latchplate With Respect To The
Lap And Shoulder Belt Webbing.



Faint Abrasion On D-Ring From Shoulder Belt Loading.



Deployed Driver Air Bag.



Closeup View Of The Deployed Driver Air Bag.



Air Bag Identification Numbers, Venting Ports, And Upper Module Flap.



Knee Bolster (No Contact Evidence) And Intruding Toe Pan
Adjacent To A-Pillar.

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Accident Schematic

Case No. 91-4

Median Barrier
Contact Damage

Vehicle:

#1 - 1991 Geo Storm GSi

Concrete Wall

W- Beam Guardrail

Concrete Median Barrier

Overpass

Guardrail Damage



Scale 1"=20'

Contusions of both upper eyelids (AIS-1), Air bag

Small abrasions of the forehead and eyebrow areas (AIS-1), Air bag

Small contusions of the forehead and eyebrow areas (AIS-1), Air bag

Small contusions of the nose and bridge of the nose (AIS-1), Air bag

Small abrasions of the nose and bridge of the nose (AIS-1), Air bag

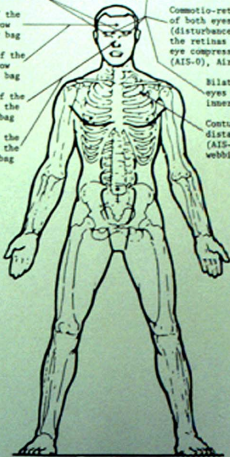
Bilateral vitreous hemorrhage behind the iris in the jelly part of the eye (AIS-0), Air bag

Commotio-retinae of both eyes (disturbance of the retinas from eye compression (AIS-0), Air bag

AGE 25
SEX Male
WT. 176 lbs.
HT. 72"

Bilateral hyphema of the eyes (hemorrhaging of the inner eye) (AIS-0), Air bag

Contusion of the left chest, distal to the shoulder (AIS-1), Shoulder belt webbing













































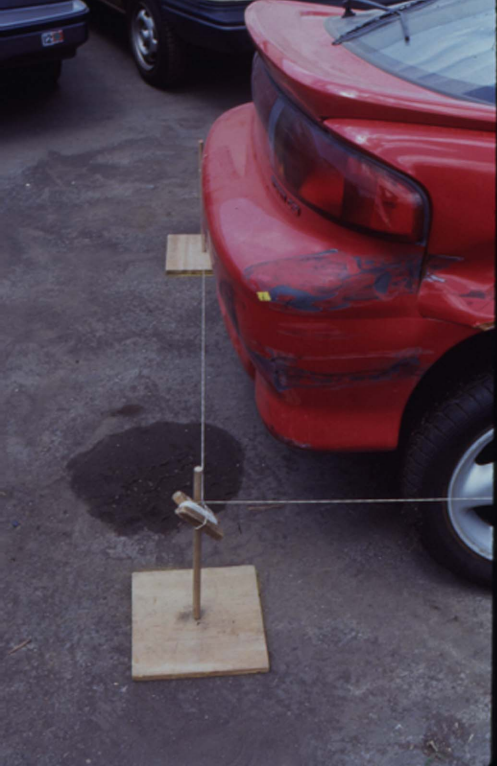




























THIS VEHICLE RECEIVED





















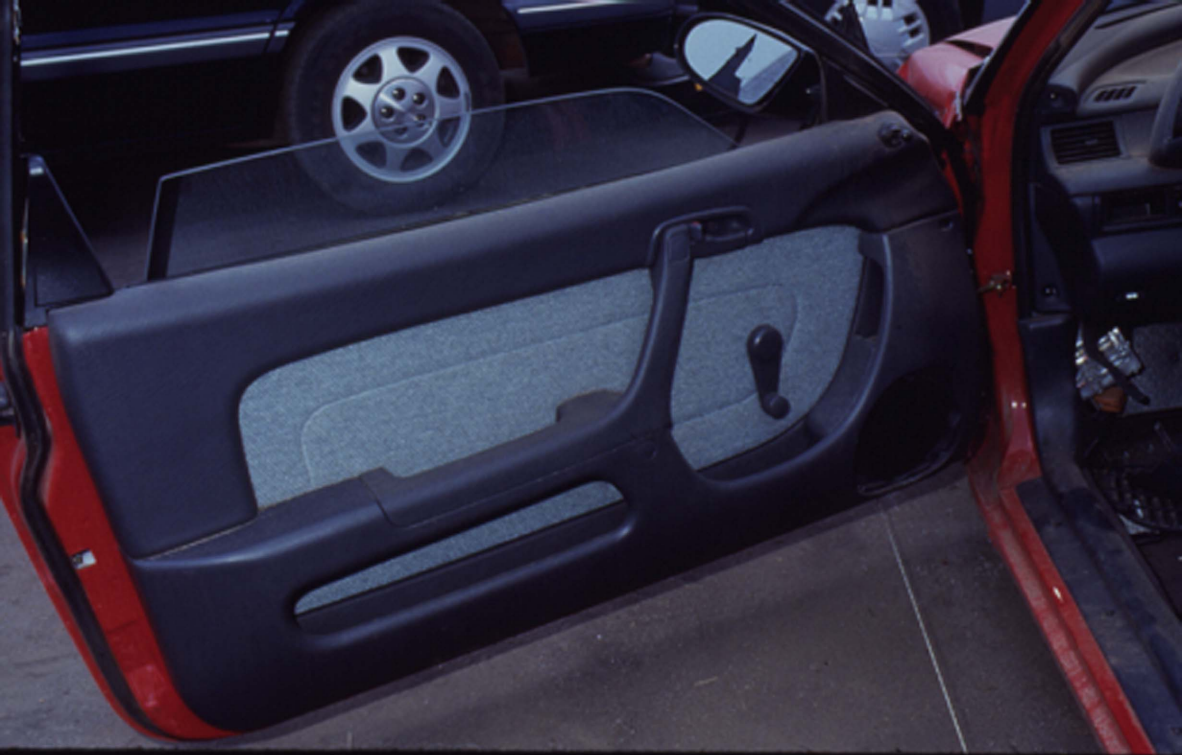






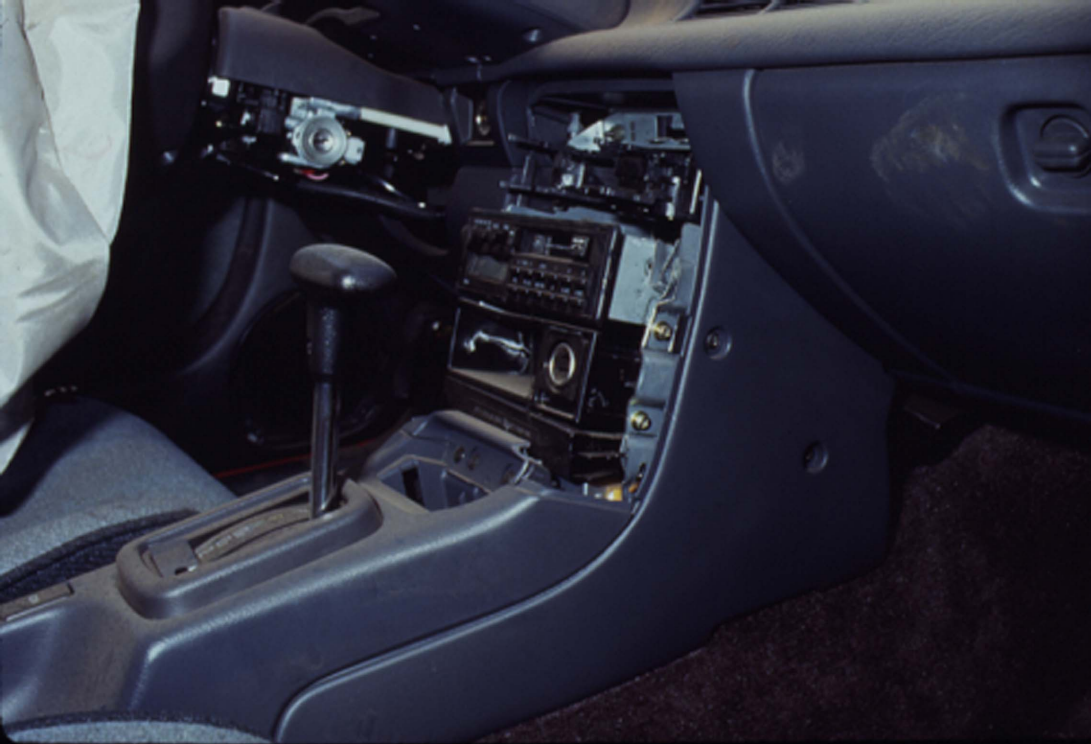


















APPENDIX A

Police Accident Report

Cartax-june 8

28

| | | | | | |
|--|--|--|--|--|--|
| UNIT CLASS CODE 01 Automobile 02 Truck Van 03 Bus-Transit Pickup Truck 04 Bus-School Truck - other 05 Bus-Other Bus-Transit 06 Motorcycle Bus-School 07 Motor-Scooter Bus - other 08 Moped Motorcycle 09 Bicycle Motor Scooter 10 Moped Motor Scooter Moped 11 Farm Vehicle/Equip Bicycle 12 Pedestrian Maint./Construction Equip 13 Other Farm Veh./Equip 14 Recreational Vehicle 15 Pedestrian 16. Other | | TRAILER TYPE 00 None 01 Boat 02 Flatbed 03 Gondola 04 Hopper 05 Horse 06 Livestock 07 Lowbed or Lowboy 08 Tanker 09 House or Travel 10 Cable Reel 11 Utility 12 Van 13 Pole 14 Miscellaneous (Other) | | HAZARDOUS MATERIAL Being Transported 1 Flammable liquid 2 Corrosive Material 3 Explosives 4 Radioactive Material 5 Ammonia 6 Chlorine 7 Other | |
| VEHICLE COLOR 01 Black 10 Maroon 02 Blue 11 Orange 03 Lt. Blue 12 Pink 04 Brown 13 Purple 05 Cream 14 Red 06 Gold 15 Silver 07 Gray 16 Tan 08 Green 17 White 09 Lt. Green 18 Yellow | | SPECIAL USE 00 None of the following 01 Driver Training 02 Construction/Maint. 03 Recreation 03 04 Taxi 04 05 Fire 05 06 Wrecker on Call 06 07 Ambulance 07 08 Police on Duty 08 09 Military 09 10 Government 10 11 Farm Use 11 12 Other 08 Police - off Duty | | DRIVER LICENSE CODE 1 Motor Scooters 2 Motorcycles and Motor Scooters 3 Cars, Buses & Trucks 10,000 lbs. GVWR or less 4 Buses over 10,000 lbs. GVWR and 3 5 Trucks over 10,000 lbs. GVWR and 3 6 Tractors, Semi Trailers and 3 & 5 7 Truck Trailers and 3, 5 & 6 8 Buses and 5 9 Buses and 6 0 All motor vehicles categories 3, 4, 5, 6 | |
| COORDINATION TEST 0 Not Given 1 Passed 2 Failed | | LICENSE STATUS 1 Valid 2 Not Licensed 3 Cancelled 4 Denied 5 Expired 6 Revoked 7 Suspended 8 Temporary | | LICENSE RESTRICTION CODE A Glasses B Outside Mirror C Automatic Transmission D Day Light Hours Only E Full Hand Equipment F Mechanical Signals O Other | |
| ROAD CLASSIFICATION/JURISDICTION 1 Federal Aid Interstate State 2 Federal Aid Primary State 3 Federal Aid Secondary & Federal Aid Urban State 4 Local Road (except Arterial & Collector) State 5 Arterial Road State 6 Collector Road State 7 FAS & FAU routes County 8 Local Road (except Arterial & Collector) County 9 Arterial Road County 0 Collector Road County P Private | | | | | |
| HOSPITAL CODE <div style="display: flex; justify-content: space-between;"> <div> 99 Other HAWAII 01 Hilo Hospital 02 Kaneohe Hospital </div> <div> KAUAI 09 Wilcox Memorial Hospital 10 Kauai Veterans Memorial Hosp. </div> <div> OAHU 13 Castle Hospital 14 Children's Hospital 15 Kahuku Hospital 16 Kaiser Foundation Hospital 17 Kaneohe State Hospital </div> </div> | | | | | |

Hospital Codes OK.

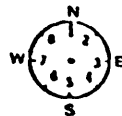
IF A QUESTION DOES NOT APPLY ENTER AN 'X' IF ANSWER IS UNKNOWN ENTER 'H A U' OTHER - EXPLAIN IN ACCIDENT DESCRIPTION

DIRECTION OF TRAVEL

Enter 2 Numbers for each unit

Direction is given by number center of circle and number

Ex. 54 means N then NW 23 means SW then S
51 means N 37 means W 52 means NE



VEHICLE MANEUVER

- | | | |
|---------------------|-----------------------|---------------------|
| 01 Straight Ahead | 07 Parking | 13 Right Turn-other |
| 02 Changing Lanes | 08 Parked | 14 Left Turn |
| 03 Merging | 09 Start from Parking | 15 U Turn |
| 04 Overtaking | 10 Stopped in Traffic | 16 Entering Traffic |
| 05 Slowing Stopping | 11 Start in Traffic | 17 Other |
| 06 Backing | 12 Right Turn on Red | |

VISION OBSTRUCTION

- | | | |
|----------------------|-----------------------|--------------------------|
| 0 None | 3 Building | 6 Blinded Sun Headlights |
| 1 Trees Bushes Fence | 4 Moving Vehicle | 7 Rain Dirt Windshield |
| 2 Embankment | 5 Parked Stopped Veh. | 8 Other |

HUMAN FACTORS (up to two)

- | | | | |
|----------------|-----------|---------------------------|---------|
| 0 None | 3 Fatigue | 6 Illness | 9 Other |
| 1 Inattention | 4 Alcohol | 7 Legal Medication | |
| 2 Misjudgement | 5 Drugs | 8 Distraction by Occupant | |

VIOLATIONS OTHER FACTOR(S)

- | | | |
|------------------------|------------------------|-------------------------|
| 00 None | VEHICLE | PED BIC MOPED |
| 01 Excessive Speed | 05 Improper Turn | 10 Illegally in Roadway |
| 02 Disregard Controls | 07 Improper Overtaking | 11 Bicycle Violation |
| 03 Failure to Yield | 08 Followed Too Close | 12 Clothing Not Visible |
| 04 Wrong Way/Direction | 09 Other | |
| 05 Crossed Centerline | | |

TRAFFIC CONTROLS TYPE

- | | | |
|-------------------|------------------|-------------------|
| 0 None | 3 Yield Sign | 6 Officer/Flagman |
| 1 Traffic Signals | 4 Flashing Red | 7 JPO |
| 2 Stop Sign | 5 Flashing Amber | 9 X Other |

ROADWAY COMPOSITION

- | | |
|------------------------|---------|
| 1 Concrete | 4 Dirt |
| 2 Asphalt | 5 Other |
| 3 Gravel/Crushed Coral | |

TRAFFIC CONTROL CONDITION

- | | |
|------------------------|-----------------------------|
| 1 Functioning Properly | 5 Yellow not Operating |
| 2 Knocked Down | 6 Green not Operating |
| 3 Obscured | 7 Arrow not Operating |
| 4 Red not Operating | 8 Stuck-Lights not Changing |
| | 9 Other Malfunction |

ROADWAY SURFACE CONDITION

- | | | |
|-------|----------|---------|
| 1 Dry | 3 Muddy | 5 Only |
| 2 Wet | 4 Debris | 6 Other |

GUIDANCE (prior to harmful event)

- | | | |
|---------------|-----------------|-----------------------|
| LEFT OF UNIT | 0 None | 5 Curb/Median/Barrier |
| | 1 Solid Yellow | 6 Broken Lane |
| | 2 Broken Yellow | 7 X Bikeway Marking |
| RIGHT OF UNIT | 3 Solid White | 7 X Crosswalk Line |
| | 4 Broken White | |

ROAD DEFECTS (up to two)

- | | | |
|----------------------|------------------|--------------------|
| 1 No Defects | 4 Low Shoulder | 7 Restricted Width |
| 2 Holes, Ruts, Bumps | 5 High Shoulder | 8 Other Defects |
| 3 Soft Shoulder | 6 Loose Material | |

ROADWAY ALIGNMENT

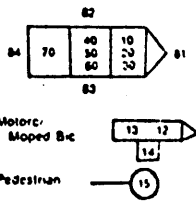
- | HORIZONTAL | VERTICAL |
|------------|-------------|
| 1 Straight | 3 Level |
| 2 Curved | 4 Upgrade |
| | 5 Downgrade |
| | 6 Hillcrest |
| | 7 Sag |

VEHICLE FACTOR(S) (up to 2 items)

- | | | |
|----------------|--------------|---------------|
| 0 None | 3 Brakes | 6 Turnsignals |
| 1 Worn Tires | 4 Headlights | 7 Steering |
| 2 Tire Failure | 5 Taillights | 8 Other |

NOTE: VIOLATIONS becomes OTHER FACTOR(S)

- 06. Improper Turn
- 07. Improper Overtaking
- 08. Followed Too Close

| | | | | |
|---|--|--|---|---|
| B POSITION IN UNIT Vehicle For Lap Positions Replace "0" with "1", e.g., 21, 31 etc.  Motorist/ Moped Bicyclist Pedestrian | F SAFETY-EQUIPMENT-USE 00 Not Present 01 Lap Belt Used 02 Lap Belt Not Used 03 Belt Used/Harness Not 04 Belt/Harness Not Used 05 Harness Only Used 06 Belt/Harness Used 07 Helmet Used 08 Shield/Helmet Not Used 09 Helmet/Shield Used 10 Shield Used 11 Bag Deployed 12 Bag Not Deployed 13 Blanket Deployed 14 Blanket Not Deployed 15 Padding 16 Passive Belt/Harness 17 Passive System Inoperable 18 Youth Perm Used 19 Youth Port Used 20 Youth Belt Sys Used | G INJURY-CLASS 00 No injury 01 Possible Injury 02 Non-incapacitating Inj. 03 Incapacitating Injury 04 Fatal H INJURY-AREA 01 Head 02 Face 03 Eye 04 Neck 05 Chest 06 Back 07 Shoulder/Upper Arm 08 Elbow/Lower Arm/Hand 09 Abdomen/Pelvis 10 Hip/Upper Leg 11 Knee/Lower Leg/Foot 12 Entire Body | CAUSE-OF-INJURY 01 Steering Wheel 02 Dashboard/Instrument 03 Roof 04 Windshield 05 Glass Not Windits 06 Glass Component 07 Mirror 08 Pillar 09 Seat 10 Loose Objects 11 Engine 12 Hood 13 Fender/Door 14 Wheel 15 Bumper 16 Grill 17 Lights 18 Motor 19 General 20 External Object | K VICTIM-TRANSPORT 01 Not Transported 02 Transported 03 By Ambulance 04 By Police Car 05 By Helicopter 06 By Private Vehicle 07 Other L HOSPITAL (see back of cover) |
| E EJECTION 00 Not Ejected 01 Total Ejection 02 Partial Ejection 03 Trapped | M CONDITION 01 Refused Treatment 02 Released 03 Good, Fair 04 Serious, Guarded 05 Critical 06 Dead on Arrival 07 Dead-Other | J ACC-SITE-CARE 00 None 01 First Aid 02 Resuscitation 03 Extrication 04 1 and 2 05 1 and 3 06 2 and 3 07 Other 08 Refused | | |

F SAFETY-EQUIPMENT-USE

00 Not Present

Vehicle:

01 Lap Belt Used

02 Lap Belt Not Used

03 Belt Used/Harness Not

04 Belt/Harness Not Used

05 Harness Only Used

06 Belt/Harness Used

Motorist/Moped Bicyclist

07 Helmet Used

08 Shield/Helmet Not Used

09 Helmet/Shield Used

10 Shield Used

Passive

11 Bag Deployed

12 Bag Not Deployed

13 Passive Belt/Harness

14 Passive System Inoperable

Youth

15 Youth Perm Used

16 Youth Port Used

17 Youth Belt Sys Used

APPENDIX B

Air Bag Supplement

BEST AVAILABLE COPY

SYSTEM READINESS LAMP
(in Instrument Cluster)

PRE-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

DRIVER'S REPORT OF
PRE-IMPACT FLASHING

- (00) No Flashing Reported
- (01) Continuous Flashing
- (02) -- >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not App (system removed)
- (99) Unknown

PERIOD OF PRE-IMPACT FLASHING

- (0) No Flashing
- (1) Same Day as Impact
- (2) Prior Day
- (3) Prior Two Days
- (4) Prior Week
- (5) Prior Month
- (6) Over One Month
- (9) Unknown

POST-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

POST-IMPACT FLASHING

- (00) No Flashing
- (01) Continuous Flashing
- (02) -- >Number of Flashes ^{NO}POWER
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not Appl (removed)
- (99) Unknown

AIRBAG VEHICLE
FIRST HARMFUL EVENT

25

- (01) Fire or explosion
- (02) Immersion
- (03) Gas Inhalation
- (04) Fell from vehicle
- (05) Injured in vehicle
- (06) Other noncollision (specify):
- (07) Overtake
- (08) Jackknife with intraunit damage
Collision With:
- (09) Pedestrian
- (10) Pedalcyclist
- (11) Railway train
- (12) Animal
- (13) Motor vehicle in transport (same roadway)
- (14) Motor vehicle in transport (other roadway)
- (15) Parked motor vehicle
- (16) Other type nonmotorist (specify):
- (17) Thrown or falling object
- (18) Boulder
Collision with Fixed Object:
- (20) Building
- (21) Impact attenuator/Crash Cushion
- (22) Bridge pier or abutment
- (23) Bridge parapet end
- (24) Bridge rail
- (25) Guardrail
- (26) Concrete traffic barrier
- (27) Median barrier
- (28) Other longitudinal barrier (specify):
- (29) Highway/Traffic sign post
- (30) Overhead sign support
- (31) Luminaire/Light support
- (32) Utility pole
- (33) Other post, pole, or support (specify):
- (34) Culvert
- (35) Curb
- (36) Ditch
- (37) Embankment-earth
- (38) Embankment-rock, stone or concrete
- (39) Fence (wooden, wire, chain link, etc.)
- (40) Wall (stone, rock, metal, etc.)
- (41) Fire hydrant
- (42) Shrubbery
- (43) Tree
- (44) Other fixed object (specify):
- (45) Pavement surface irregularity (pothole, grooved, grates)
- (99) Unknown

AIRBAG VEHICLE IMPACT SUMMARY

VEHICLE ROLE

- (0) Non-collision
 () Striking Unit
 (2) Struck Unit
 (3) Both Striking and Struck
 () Unknown

MANNER OF LEAVING SCENE

- () Driven
 (2) Towed-due to damage
 (3) Towed - not for damage
 () Towed - details unknown
 (5) Abandoned
 (9) Unknown

NUMBER OF IMPACT EVENTS

- (8) 8 or more, (9) Unknown

- ROLLOVER (0) No Rollover
 (1) First Event
 (2) Subsequent Event
 (3) Yes, Unknown Event
 (9) Unknown

OVERRIDE/UNDERRIDE

- (1) No over/underride
 () Override - 1st CDC
 () - Other CDC
 (4) Underride - 1st CDC
 () - Other CDC
 () Unknown

AIRBAG VEHICLE DAMAGE

- CODES: (1) Yes, DAMAGED
 (2) No Damage
 (9) Unknown

LEFT FRONT FENDER DAMAGE

RIGHT FRONT FENDER DAMAGE

CENTER TOP OF GRILLE DAMAGE

FRONT BUMPER E.A. STATUS: Left

- () Normal Right
 (2) Extended
 () Partial Compression
 () Complete Compression
 (5) Not Applicable
 (9) Unknown

FIRST AIRBAG VEHICLE IMPACT:

CONFIGURATION

- (0) Struck Object or Pedestrian
 (1) Rear-End
 (2) Head-On
 (3) Rear-to-Rear
 (4) Angle
 (5) Sideswipe - Same Direction
 (6) Sideswipe-Opposite Direct.
 (7) NonCollision Fell from Veh
 (8) NonImpact Deployment
 (9) Unknown

CDC - - - - -

OBJECT CONTACTED: W-BEAM GUARDRAIL

PRIMARY/DEPLOYMENT IMPACT:

EVENT NUMBER

TOTAL DELTA-V OUTSIDE SCOPE
 OF CRASH

LONGITUDINAL DELTA-V

CONFIGURATION

- (0) Struck Object or Pedestrian
 (1) Rear-End
 (2) Head-On
 (3) Rear-to-Rear
 (4) Angle
 (5) Sideswipe - Same Direction
 (6) Sideswipe-Opposite Direct.
 (7) NonCollision Fell from Veh
 (8) NonImpact Deployment
 (9) Unknown

CDC - - - - -

OBJECT CONTACTED: W-BEAM GUARDRAIL

NOTES:

AIRBAG SYSTEM DAMAGE

CODES: (1) Yes, Damaged*
 (2) No, Intact
 (8) Not App.(Removed)
 (9) Unknown

AIRBAG MODULE

SENSORS: Left Front

Center Front

Right Front

Rear, Cowl

DIAGNOSTIC MODULE

WIRING

KNEE DIVERTER

INDICATION OF DISCONNECTED
 OR LOOSE ELECTRICAL
 CONNECTORS

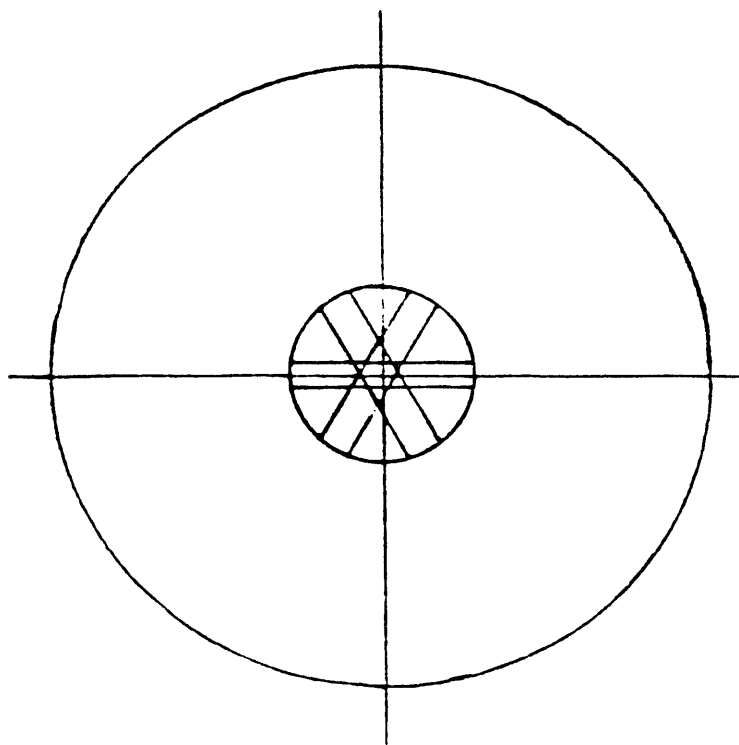
CONDITION OF DEPLOYED BAG

(1) Bag Intact
 (2) Split or Torn*
 (3) Cut by Object In Impact*
 (4) Cut after Accident*
 (5) Other (e.g., burned)*
 (8) N/A (not deployed)
 (9) Unknown

*DESCRIBE System and Bag Damage:

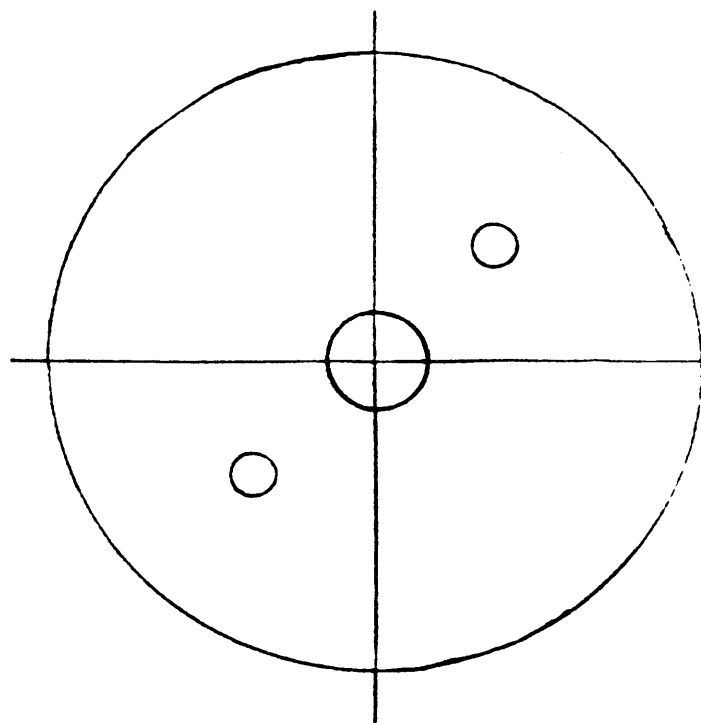
NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

NO DAMAGE OR CONTACT EVIDENCE



FRONT

TOP



BOTTOM

| | | |
|---|----------|-----------|
| OCCUPANTS of AIRBAG CAR | | |
| NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more | <u>1</u> | NOTES: |
| NUMBER OF INJURED PERSONS | <u>1</u> | |
| MAXIMUM AIS IN AIRBAG VEHICLE (0) No Injury (1-6) AIS Severity (7) Injured, Unknown Severity (8) Unknown | <u>1</u> | |
| DRIVER AGE <u>25</u> SEX <u>MALE</u> | | |
| NUMBER OF DRIVER INJURIES | <u>7</u> | |
| SOURCE OF BEST INJURY DATA | <u>2</u> | |
| (0) Not Injured (1) Autopsy w/wo med. records (2) Hospital Medical Records (3) Emergency Room only (4) Private physician, Clinic (5) Lay Coroner Report (6) EMS Personnel (7) Interviewee (8) Police (9) Unknown | | |
| ----- | | |
| MAXIMUM AIS BY BODY REGION | | |
| REGION | MAX AIS | CONTACT |
| Head/Neck/Face | <u>1</u> | <u>45</u> |
| Chest | <u>1</u> | <u>41</u> |
| Abdomen | --- | --- |
| Leg/Hips | --- | --- |
| Other (Arms) | --- | --- |
| DRIVER MAXIMUM | --- | --- |
| ----- | | |
| EJECTION: Extent <u>NONE</u> | | |
| Portal <u>N/A</u> | | |

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 1Evidence: DRIVER WORE ACTIVE 3-FT. BELT, HAD LEFT CHEST
CONTUSION, DIAGONALLY ORIENTATEDDRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

UPRIGHT SEATED POSITION BEHIND WHEEL, SEAT ADJUSTED
TO MIDDLE POSITIONDRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 1

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

SOFT CONTACT LENSES, REMAINED IN EYES AND WERE
NOT DAMAGEDDRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

DIDN'T SEE OR HEAR ANYTHINGPASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown 2Describe: NO PASSENGER

APPENDIX C

NASS Vehicle Forms



GENERAL VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number
2. Case Number - ~~Stratum~~ 91-04
3. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 91
Code the last two digits of the model year
(99) Unknown
5. Vehicle Make (specify): 20
GEO
Applicable codes are found in your
NASS CDS Data Collection, Coding, and
Editing Manual.
(99) Unknown
6. Vehicle Model (specify): 035
STORM GSi
Applicable codes are found in your
NASS CDS Data Collection, Coding, and
Editing Manual.
(99) Unknown
7. Body Type 03
Note: Applicable codes are found on
the back of this page.
8. Vehicle Identification Number
J81RT2355M7
Left justify; Slash zeros and letter Z (0 and Z)
No VIN - Code all zeros
Unknown - Code all nine's

OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown
10. Police Reported Travel Speed 99
Code to the nearest mph (NOTE: 00 means
less than 0.5 mph)
(97) 96.5 mph and above
(99) Unknown

11. Police Reported Alcohol Presence 7
(0) No alcohol present
(1) Yes (alcohol present)
(7) Not reported
(8) No driver present
(9) Unknown

Note: See variables 37 through 55
(Page 4) for Information on Other Drugs

12. Alcohol Test Result for Driver 18
Code actual value (decimal implied before
first digit - 0.xx)
(95) Test refused
(96) None given
(97) AC test performed, results unknown
(98) No driver present
(99) Unknown

Source HOSPITAL RECORDS

ACCIDENT RELATED

13. Speed Limit 50
(00) No statutory limit
Code posted or statutory speed limit
(99) Unknown
14. Attempted Avoidance Maneuver 01
(00) No impact
(01) No avoidance actions
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(97) No driver present
(98) Other action (specify):

(99) Unknown
15. Accident Type 02
Applicable codes may be found on the back
of page two of this field form
(00) No impact
Code the number of the diagram that
best describes the accident circumstance
(98) Other accident type (specify):

(99) Unknown

**** SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 ****

CODES FOR BODY TYPE

CDS APPLICABLE VEHICLES

Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (08) Other automobile type (specify):

(09) Unknown automobile type

Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, and Brat)
- (11) Auto based panel (cargo station wagon, includes auto based ambulance/hearse)
- (12) Large limousine—more than four side doors or stretched chassis

Utility Vehicles

- (13) Short utility—not truck based (includes Jeep CJ-5, Jeep CJ-7, Renegade, Landrover, Pre-78 Bronco, Landcruiser, Thing)
- (14) Truck based utility (2-door; includes Blazer, Bronco—78 on, Bronco II, Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

Van Based Light Trucks ($\leq 10,000$ lbs GVWR)

- (20) Minivan (Lumina APV, Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager [84 and after], Dodge Vista, Mini Ram Van, Toyota Cargo Van, Toyota Van, Vanagon, VW Bus, Kombi)
- (21) Standard van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, Ram Wagon, Vandura, Rally, Voyager [83 and before], Beauville, Sportsman)
- (28) Other van type (Hi-Cube Van, Kary) (specify):

(29) Unknown van type

Light Conventional Trucks (Pickup Style Cab, $\leq 10,000$ lbs GVWR)

- (30) Compact pickup ($<4,500$ lbs. GVWR, S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-15 Pup, Mazda Pickup, Mitsubishi Truck, Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
- (31) Standard pickup (4,500 to 10,000 lbs. GVWR, C10 - C30, K10 - K30, T10, D100 - D350, W150 - W350, F100 - F350, Comanche, J10 - J30, Dakota)
- (32) Pickup with slide-in camper
- (33) Truck based station wagon (4-door; includes Suburban, Travelall, Wagoneer)
- (34) Light truck based suburban limousine
- (35) Convertible pickup
- (39) Unknown (pickup style) light conventional truck type

Other Light Trucks ($\leq 10,000$ lbs GVWR)

- (40) Cab chassis based (includes rescue vehicle, light stake, dump, and tow truck)
 - (41) Truck based panel
 - (42) Light truck based motorhome (chassis mounted)
 - (47) Other light conventional truck type (not a pickup—includes step vans $\leq 10,000$ lbs GVWR, Grumman LLV vehicle) (specify):
-
- (48) Unknown other light truck type (not a pickup)
 - (49) Unknown light vehicle type (automobile, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):

(59) Unknown bus type

Medium/Heavy Trucks ($>10,000$ lbs GVWR)

- (60) Step van
- (61) Single unit straight truck (10,000 lbs $<$ GVWR $\leq 26,000$ lbs)
- (62) Single unit straight truck ($>26,000$ lbs GVWR)
- (63) Medium/heavy truck based motorhome
- (64) Truck-tractor with no cargo trailer
- (65) Truck-tractor pulling one trailer
- (66) Truck-tractor pulling two or more trailers
- (67) Truck-tractor (unknown if pulling trailer)
- (68) Unknown medium/heavy truck type
- (69) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (70) Motorcycle
- (71) Moped (motorized bicycle)
- (78) Other motored cycle type (minibike, motorscooter) (specify):

(79) Unknown motored cycle type

Other Vehicles

- (80) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (88) Other vehicle type (specify):

(99) Unknown body type

OCCUPANT RELATED16. Driver Presence in Vehicle 1

- (0) Driver not present
(1) Driver present
(9) Unknown

17. Number of Occupants This Vehicle 01

- (00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

18. Number of Occupant Forms Submitted 01**VEHICLE WEIGHT ITEMS**19. Vehicle Curb Weight 02,300
2282 Code weight to nearest 100 pounds.

- (010) Less than 1050 pounds
(135) 13,500 lbs or more
(999) Unknown

Source: _____

20. Vehicle Cargo Weight 0,000
N/A Code weight to nearest 100 pounds.

- (00) Less than 50 pounds
(97) 9,650 lbs or more
(99) Unknown

RECONSTRUCTION DATA21. Towed Trailing Unit 0
(0) No towed unit
(1) Yes – towed trailing unit
(9) Unknown22. Documentation of Trajectory Data for This Vehicle 0
(0) No
(1) Yes23. Post Collision Condition of Tree or Pole (for Highest Delta V) 0
(0) Not collision (for highest delta V) with tree or pole
(1) Not damaged
(2) Cracked/sheared
(3) Tilted <45 degrees
(4) Tilted ≥45 degrees
(5) Uprooted tree
(6) Separated pole from base
(7) Pole replaced
(8) Other (specify): _____
(9) Unknown24. Rollover 0

- (0) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)

- (1) Rollover, 1 quarter turn only
(2) Rollover, 2 quarter turns
(3) Rollover, 3 quarter turns
(4) Rollover, 4 or more quarter turns (specify): _____

- (5) Rollover – end-over-end (i.e., primarily about the lateral axis)
(9) Rollover (overturn), details unknown

OVERRIDE/UNDERRIDE (THIS VEHICLE)25. Front Override/Underride (this vehicle) 026. Rear Override/Underride (this vehicle) 0

- (0) No override/underride, or not an end-to-end impact

Override (see specific CDC)

- (1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify): _____

Underride (see specific CDC)

- (4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify): _____

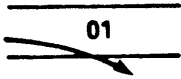
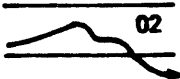
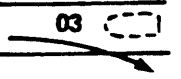
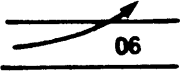
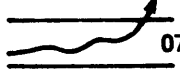
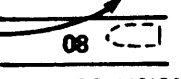
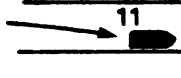


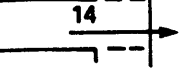
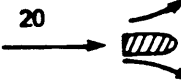
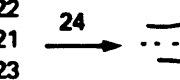
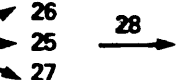
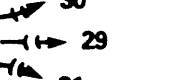

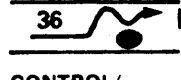
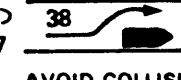
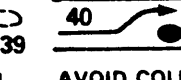
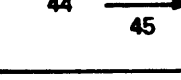
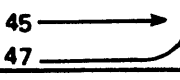

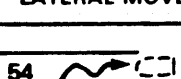
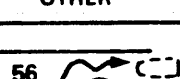
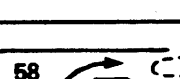
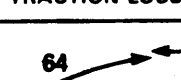
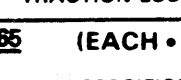
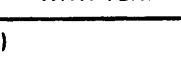
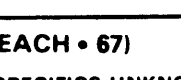

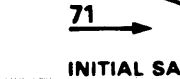
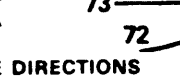
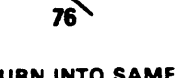









- (7) Medium/heavy truck or bus override
(9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value

- (997) Noncollision
(998) Impact with object
(999) Unknown

27. Heading Angle for This Vehicle 99828. Heading Angle for Other Vehicle 998

| Category | Configuration | ACCIDENT TYPES (Includes Intent) | | | | |
|---|-----------------------------|--|--|--|---|--|
| I. Single Driver | A. Right Roadside Departure |  01 DRIVE OFF ROAD |  02 CONTROL/ TRACTION LOSS |  03 AVOID COLLISION WITH VEH., PED., ANIM. | 04 SPECIFICS OTHER | 05 SPECIFICS UNKNOWN |
| | B. Left Roadside Departure |  06 DRIVE OFF ROAD |  07 CONTROL/ TRACTION LOSS |  08 AVOID COLLISION WITH VEH., PED., ANIM. | 09 SPECIFICS OTHER | 10 SPECIFICS UNKNOWN |
| | C. Forward Impact |  11 PARKED VEH. |  12 STA. OBJECT |  13 PEDESTRIAN/ ANIMAL |  14 END DEPARTURE | 15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN |
| II. Same Trafficway Same Direction | D. Rear-End |  20 STOPPED 21, 22, 23 |  22 SLOWER 24, 25, 26, 27 |  26 DECEL. 28, 29, 30, 31 |  30 AVOID COLLISION WITH VEH. | (EACH • 32) SPECIFICS OTHER (EACH • 33) SPECIFICS UNKNOWN |
| | E. Forward Impact |  34 CONTROL/ TRACTION LOSS |  36 CONTROL/ TRACTION LOSS |  38 AVOID COLLISION WITH VEH. |  40 AVOID COLLISION WITH OBJECT | (EACH • 42) SPECIFICS OTHER (EACH • 43) SPECIFICS UNKNOWN |
| | F. Sideswipe Angle |  44 45 46 47 |  46 45 47 |  48 45 47 | (EACH • 48) SPECIFICS OTHER | (EACH • 49) SPECIFICS UNKNOWN |
| III. Same Trafficway Opposite Direction | G. Head-On |  50 LATERAL MOVE |  51 (EACH • 52) SPECIFICS OTHER |  53 (EACH • 53) SPECIFICS UNKNOWN | | |
| | H. Forward Impact |  54 CONTROL/ TRACTION LOSS |  56 CONTROL/ TRACTION LOSS |  58 AVOID COLLISION WITH VEH. |  60 AVOID COLLISION WITH OBJECT | (EACH • 62) SPECIFICS OTHER (EACH • 63) SPECIFICS UNKNOWN |
| | I. Sideswipe/ Angle |  64 LATERAL MOVE |  65 (EACH • 66) SPECIFICS OTHER |  67 (EACH • 67) SPECIFICS UNKNOWN | | |
| IV. Change Trafficway Vehicle Turning | J. Turn Across Path |  68 INITIAL OPPOSITE DIRECTIONS |  70 INITIAL SAME DIRECTIONS |  72 73 74 75 | (EACH • 74) SPECIFICS OTHER (EACH • 75) SPECIFICS UNKNOWN | |
| | K. Turn Into Path |  76 TURN INTO SAME DIRECTION |  78 TURN INTO OPPOSITE DIRECTIONS |  80 81 82 83 | (EACH • 84) SPECIFICS OTHER (EACH • 85) SPECIFICS UNKNOWN | |
| V. Intersecting Paths (Vehicle Damage) | L. Straight Paths |  86 87 |  88 89 | (EACH • 90) SPECIFICS OTHER | (EACH • 91) SPECIFICS UNKNOWN | |
| VI. Miscellaneous | M. Backing Etc. |  92 BACKING VEH. |  93 OTHER VEH. OR OBJECT | 98 Other Accident Type 99 Unknown Accident Type 00 No Impact | | |

29. Basis for Total Delta V (Highest)

5

Delta V Calculated

- (1) CRASH program – damage only routine
- (2) CRASH program – damage and trajectory routine
- (3) Missing vehicle algorithm

Delta V Not Calculated

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
- (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction techniques, regardless of adequacy of damage data.
- (6) All vehicles and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

Secondary Highest

32. Lateral Component of Delta V

+ 99

____ Nearest mph ____

(NOTE: __00 means greater than
– 0.5 and less than +0.5 mph)
(± 97) ± 96.5 mph and above
(– 99) Unknown

33. Energy Absorption

999,900

____ Nearest 100 foot-lbs ____

(NOTE: 0000 means less than 50 Foot-Lbs)
(9997) 999,650 foot-lbs or more
(9999) Unknown

34. Confidence in Reconstruction Program Results (for Highest Delta V)

0

- (0) No reconstruction
- (1) Collision fits model – results appear reasonable
- (2) Collision fits model – results appear high
- (3) Collision fits model – results appear low
- (4) Borderline reconstruction – results appear reasonable

35. Type of Vehicle Inspection

1

- (0) No inspection
- (1) Complete inspection
- (2) Partial inspection (specify):

30. Total Delta V

Secondary Highest

99

____ Nearest mph ____

(NOTE: 00 means less than
0.5 mph)
(97) 96.5 mph and above
(99) Unknown

31. Longitudinal Component of Delta V

+ 99

____ Nearest mph ____

(NOTE: __00 means greater than
– 0.5 and less than +0.5 mph)
(± 97) ± 96.5 mph and above
(– 99) Unknown

36. Is this an AOPS Vehicle?

1

- (0) No
- (1) Yes

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [] YES [✓] NO
IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [] YES [] NO

37. Police Reported Other Drug Presence 0

- (0) No other drugs present
- (1) Yes (other drug present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

38. Police Reported Observation/Perception Test Type For Driver 0

- (0) No observation/perception test given
- (1) Drug recognition technician (DRT) determination
- (2) Behavioral
- (3) Other physical observation/perception determination (specify):

- (7) Other observation/perception test
- (8) No driver present

- (9) Unknown if observation/perception test given

39. Other Drug Specimen Test Type For Driver 0

- (0) No specimen test given
- (1) Blood test
- (2) Urine test
- (3) Other specimen tests (specify):

- (7) Unspecified specimen test
- (8) No driver present
- (9) Unknown if specimen test given

OTHER DRUGS TEST RESULTS FOR DRIVER

| | Observation/ Perception Test Results | Specimen Test Results |
|---|--|--------------------------|
| Narcotic Drug | 40. <u>0</u> | 41. <u>0</u> |
| Depressant Drug | 42. <u>0</u> | 43. <u>0</u> |
| Stimulant Drug | 44. <u>0</u> | 45. <u>0</u> |
| Hallucinogen Drug | 46. <u>0</u> | 47. <u>0</u> |
| Cannabinoid Drug | 48. <u>0</u> | 49. <u>0</u> |
| Phencyclidine (PCP) Drug | 50. <u>0</u> | 51. <u>0</u> |
| Inhalant Drug | 52. <u>0</u> | 53. <u>0</u> |
| Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash) | 54. <u>0</u> | 55. <u>0</u> |

Codes For Observation/Perception Test Results

- (0) No observation/perception test given
- (1) Passed observation/perception test
- (2) Failed observation/perception test
- (3) Observation/perception test given—
results unknown
- (8) No driver present
- (9) Unknown if observation/perception
test given

Codes for Specimen Test Results

- (0) No specimen test given
- (1) Drug not found in specimen
- (2) Drug found in specimen
- (8) No driver present
- (9) Unknown if specimen test given

*** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), ***
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

*** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE ***
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

| | | | |
|-----------------------------------|--------------|-------------------|-----------|
| 1. Primary Sampling Unit Number | _____ | 3. Vehicle Number | <u>01</u> |
| 2. Case Number Stratum | <u>91-04</u> | | |

VEHICLE IDENTIFICATION

VIN J81RT2355M7 Model Year 1991
Vehicle Make (specify): GEO Vehicle Model (specify): STORM GSi

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

| Specific Impact No. | Location of Direct Damage | Location of Field L |
|---------------------|---------------------------|---------------------|
| | | |
| | | |
| | | |

CRUSH PROFILE

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

[illegible]

VEHICLE DAMAGE SKETCH

TIRE – WHEEL DAMAGE

a. Rotation physically restricted b. Tire deflated

RF ____

RF ____

LF ____

LF ____

RR ____

RR ____

LR ____

LR ____

(1) Yes (2) No (8) NA (9) Unk.

TYPE OF TRANSMISSION

☐ Manual ☒ Automatic

ORIGINAL SPECIFICATIONS

Wheelbase _____

Overall Length _____

Maximum Width _____

Curb Weight _____

Average Track _____

Front Overhang _____

Rear Overhang _____

Engine Size: cyl./ displ. _____

Undeformed End Width _____

WHEEL STEER ANGLES

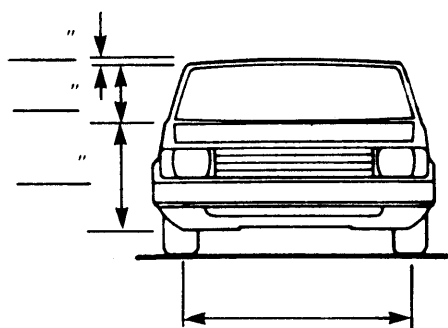
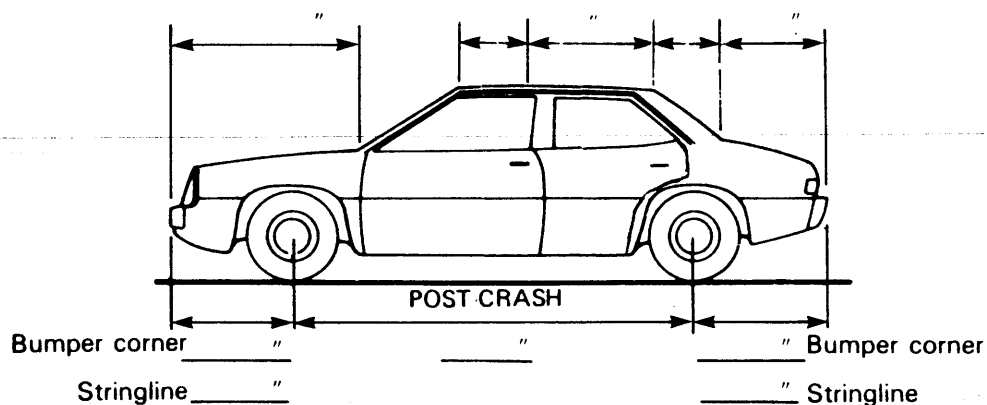
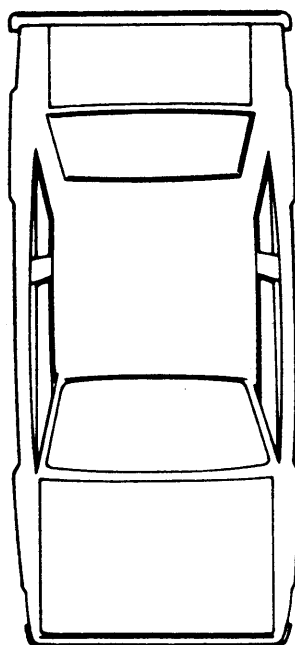
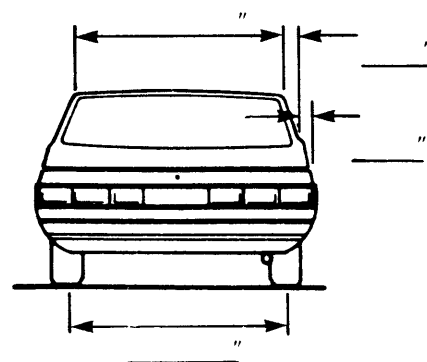
(For locked front wheels or displaced rear axles only)

RF \pm ____ $^\circ$ LF \pm ____ $^\circ$ RR \pm ____ $^\circ$ LR \pm ____ $^\circ$ Within ± 5 degrees

DRIVE WHEELS

☒ FWD ☐ RWD ☐ 4WD

Approximate Cargo Weight _____

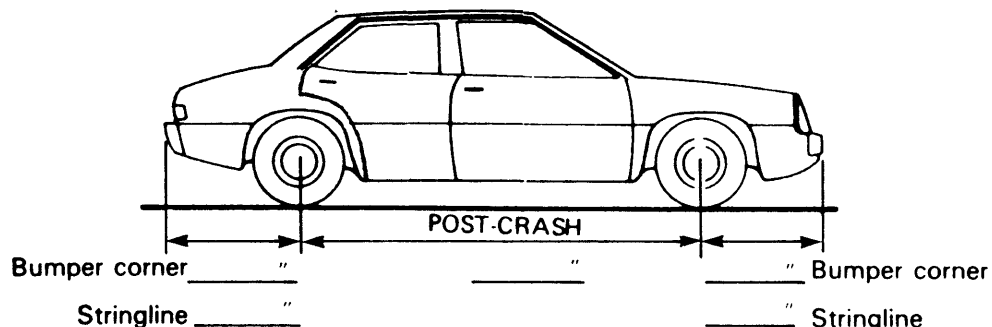
Original
Bumper height

Bumper corner ____

Stringline ____

Bumper corner ____

Stringline ____



Bumper corner ____

Stringline ____

Bumper corner ____

Stringline ____

NOTES Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

CODES FOR OBJECT CONTACTED

(99) Unknown event or object

[illegible]

COLLISION DEFORMATION CLASSIFICATION**HIGHEST DELTA "V"**

| Accident Event Sequence Number | Object Contacted | (1) (2) Direction of Force | (3) Deformation Location | (4) Specific Longitudinal or Lateral Location | (5) Specific Vertical or Lateral Location | (6) Type of Damage Distribution | (7) Deformation Extent |
|---|---------------------|----------------------------------|--------------------------------|---|---|--|------------------------------|
| 4. ____ | 5. ____ | 6. ____ | 7. ____ | 8. ____ | 9. ____ | 10. ____ | 11. ____ |

Second Highest Delta "V"

| | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|
| 12. ____ | 13. ____ | 14. ____ | 15. ____ | 16. ____ | 17. ____ | 18. ____ | 19. ____ |
|----------|----------|----------|----------|----------|----------|----------|----------|

CRUSH PROFILE

(The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. ALL MEASUREMENTS ARE IN INCHES.)

HIGHEST DELTA "V"

| 20. L | 21. C1 | C2 | C3 | C4 | C5 | C6 | 22. + - D |
|----------|-----------|-------|-------|-------|-------|-------|--------------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

Second Highest Delta "V"

| 23. L | 24. C1 | C2 | C3 | C4 | C5 | C6 | 25. + - D |
|----------|-----------|-------|-------|-------|-------|-------|--------------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

26. Are CDCs Documented but Not Coded on The Automated File? _____

- (0) No
(1) Yes

27. Researcher's Assessment of Vehicle Disposition _____

- (0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

28. Original Wheelbase _____

_____ Code to the nearest tenth of an inch
(9999) Unknown

29. Is This A Multi-Stage Manufactured Vehicle _____

And/Or A Certified Altered Vehicle?

(0) No post manufacturer modifications

(1) Yes - post manufacturer modifications

(specify): _____

(Include photograph of CERTIFICATION
PLACARD in case report)

(9) Unknown if vehicle is modified

30. Fire Occurrence _____

(0) No fire

Yes, fire occurred

(1) Minor

(2) Major

(9) Unknown

31. Origin of Fire _____

(0) No fire

(1) Vehicle exterior (front, side, back, top)

(2) Exhaust system

(3) Fuel tank (and other fuel retention
system parts)

(4) Engine compartment

(5) Cargo/trunk compartment

(6) Instrument panel

(7) Passenger compartment area

(8) Other location (specify): _____

(9) Unknown

32. Type of Fuel Tank _____

(0) No fuel tank (electrical vehicle)

(1) Metallic

(2) Non-metallic

(9) Unknown

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED ***
(I.E., GV09=0 OR 9), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



INTERIOR VEHICLE FORM

BEST AVAILABLE COPY

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

2. Case Number - Stratum

3. Vehicle Number

INTEGRITY

4. Permanent Integrity

(00) No integrity loss

Yes, Integrity Was Lost Through

(01) Windshield

(02) Door (side)

(03) Door/hatch (back door)

(04) Roof

(05) Roof glass

(06) Side window

(07) Rear window (backlight)

(08) Roof and roof glass

(09) Windshield and door (side)

(10) Windshield and roof

(11) Side and rear window (side window and backlight)

(12) Windshield and side window

(13) Door and side window

(98) Other combination of above (specify):

(99) Unknown

5. Door, Gate, or Hatch Opening

6. If Door, Gate, or Hatch Remained Closed and Operational, Code 0

(0) No door/gate/hatch

(1) Door/gate/hatch remained closed and operational

(2) Door/gate/hatch came open during collision

(3) Door/gate/hatch jammed shut

(8) Other (specify):

(9) Unknown

7. If Door, Gate, or Hatch Came Open During Collision, Code 1

(0) No door/gate/hatch or door not opened

Door, Tailgate, or Hatch Came Open During Collision

(1) Door operational (no damage)

(2) Latch/striker failure due to damage

(3) Hinge failure due to damage

(4) Door structure failure due to damage

(5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage

(6) Latch/striker and hinge failure due to damage

(8) Other failure (specify):

(9) Unknown

GLAZING

Glazing Damage from Impact Forces

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

(0) No glazing damage from impact forces

(2) Glazing in place and cracked from impact forces

(3) Glazing in place and holed from impact forces

(4) Glazing out-of-place (cracked or not) and not holed from impact forces

(5) Glazing out-of-place and holed from impact forces

(6) Glazing disintegrated from impact forces

(7) Glazing removed prior to accident

(8) No glazing

(9) Unknown if damaged

Glazing Damage from Occupant Contact

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

(0) No occupant contact to glazing or no glazing

(1) Glazing contacted by occupant but no glazing damage

(2) Glazing in place and cracked by occupant contact

(3) Glazing in place and holed by occupant contact

(4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact

(5) Glazing out-of-place by occupant contact and holed by occupant contact

(6) Glazing disintegrated by occupant contact

(9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV 31 Through IV 46 As 0

Type of Window/Windshield Glazing

01 WS 02 IF 03 IF 04 IF 05 IF 06 IF 07 IF 08 IF 09 IF 10 IF 11 IF 12 IF 13 IF 14 IF 15 IF 16 IF 17 IF 18 IF 19 IF 20 IF 21 IF 22 IF 23 IF 24 IF 25 IF 26 IF 27 IF 28 IF 29 IF 30 IF 31 IF 32 IF 33 IF 34 IF 35 IF 36 IF 37 IF 38 IF 39 IF 40 IF 41 IF 42 IF 43 IF 44 IF 45 IF 46 IF 47 IF 48 IF 49 IF 50 IF 51 IF 52 IF 53 IF 54 IF 55 IF 56 IF 57 IF 58 IF 59 IF 60 IF 61 IF 62 IF 63 IF 64 IF 65 IF 66 IF 67 IF 68 IF 69 IF 70 IF 71 IF 72 IF 73 IF 74 IF 75 IF 76 IF 77 IF 78 IF 79 IF 80 IF 81 IF 82 IF 83 IF 84 IF 85 IF 86 IF 87 IF 88 IF 89 IF 90 IF 91 IF 92 IF 93 IF 94 IF 95 IF 96 IF 97 IF 98 IF 99 00

(0) No glazing contact and no damage, or no glazing

(1) AS-1 - Laminated

(2) AS-2 - Tempered

(3) AS-3 - Tempered-tinted

(4) AS-14 - Glass/Plastic

(8) Other (specify):

(9) Unknown

Glazing Procedure (Opening Status)

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

(0) No glazing contact and no damage, or no glazing

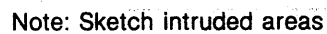
(1) Fixed

(2) Closed

(3) Partially opened

(4) Fully opened

(9) Unknown

[illegible]

52

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV 47-IV 86 blank.

| Location of Intrusion | Intruding Component | Magnitude | Dominant Crush Direction |
|-----------------------|---------------------|--------------|--------------------------|
| 1st 47. <u>1</u> | 48. <u>05</u> | 49. <u>2</u> | 50. <u>2</u> |
| 2nd 51. <u>1</u> | 52. <u>27</u> | 53. <u>2</u> | 54. <u>3</u> |
| 3rd 55. _____ | 56. _____ | 57. _____ | 58. _____ |
| 4th 59. _____ | 60. _____ | 61. _____ | 62. _____ |
| 5th 63. _____ | 64. _____ | 65. _____ | 66. _____ |
| 6th 67. _____ | 68. _____ | 69. _____ | 70. _____ |
| 7th 71. _____ | 72. _____ | 73. _____ | 74. _____ |
| 8th 75. _____ | 76. _____ | 77. _____ | 78. _____ |
| 9th 79. _____ | 80. _____ | 81. _____ | 82. _____ |
| 10th 83. _____ | 84. _____ | 85. _____ | 86. _____ |

LOCATION OF INTRUSION

| | |
|-------------|-----------------------|
| Front Seat | Fourth Seat |
| (11) Left | (41) Left |
| (12) Middle | (42) Middle |
| (13) Right | (43) Right |
| Second Seat | (97) Catastrophic |
| (21) Left | (98) Other enclosed |
| (22) Middle | area (specify): _____ |
| (23) Right | |
| Third Seat | (99) Unknown |
| (31) Left | |
| (32) Middle | |
| (33) Right | |

INTRUDING COMPONENT

Interior Components

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (Includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify): _____

- (27) Side panel - forward of the A-pillar
- (28) Side panel - rear of the A-pillar

Exterior Components

- (30) Hood
- (31) Outside surface of vehicle (specify): _____
- (32) Other exterior object in the environment (specify): _____
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): _____
- (99) Unknown

MAGNITUDE OF INTRUSION

- (1) ≥ 1 inch but < 3 inches
- (2) ≥ 3 inches but < 6 inches
- (3) ≥ 6 inches but < 12 inches
- (4) ≥ 12 inches but < 18 inches
- (5) ≥ 18 inches but < 24 inches
- (6) ≥ 24 inches
- (7) Catastrophic
- (9) Unknown

DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

STEERING RIM/SPOKE DEFORMATION**COMPARISON VALUE****DAMAGE VALUE****DEFORMATION**

STEERING COLUMN

87. Steering Column Type

- (1) Fixed column
 (2) Tilt column
 (3) Telescoping column
 (4) Tilt and telescoping column
 (8) Other column type (specify):

(9) Unknown

88. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X

89. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

90. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

91. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

92. Steering Rim/Spoke Deformation

Code actual measured

deformation to the nearest inch.

- (0) No steering rim deformation
 (1-5) Actual measured value
 (6) 6 inches or more
 (8) Observed deformation cannot be measured
 (9) Unknown

93. Location of Steering Rim/Spoke Deformation

(00) No steering rim deformation

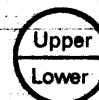
Quarter Sections

- (01) Section A
 (02) Section B
 (03) Section C
 (04) Section D



Half Sections

- (05) Upper half of rim/spoke
 (06) Lower half of rim/spoke
 (07) Left half of rim/spoke
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse
 (10) Undetermined location
 (99) Unknown

INSTRUMENT PANEL

94. Odometer Reading

2345 miles — Code mileage to the nearest 1,000 miles

- (000) No odometer
 (001) Less than 1,500 miles
 (300) 299,500 miles or more
 (999) Unknown

Source: _____

95. Instrument Panel Damage from Occupant Contact?

- (0) No
 (1) Yes
 (9) Unknown

96. Knee Bolsters Deformed from Occupant Contact?

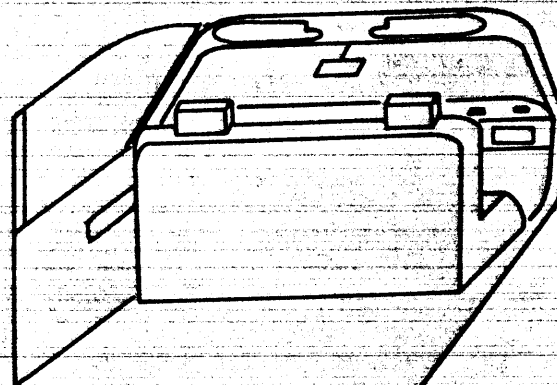
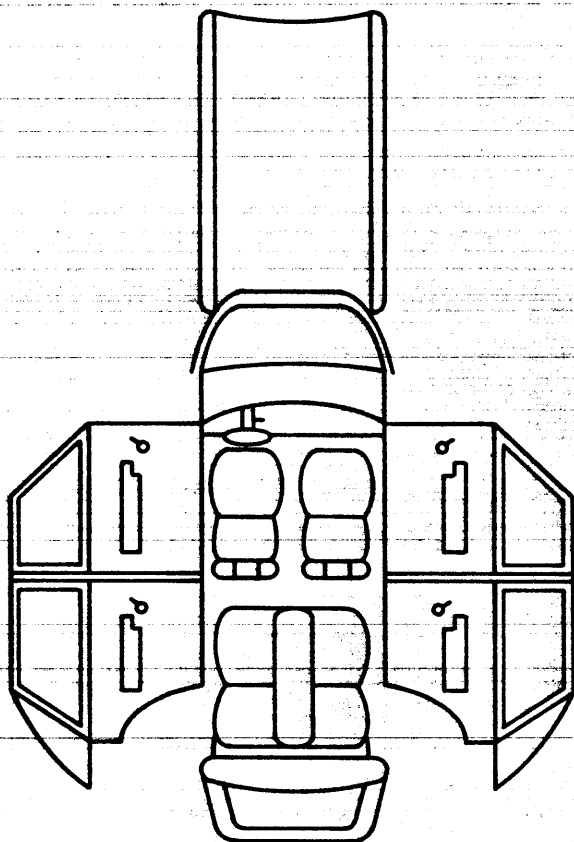
- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

97. Did Glove Compartment Door Open During Collision(s)?

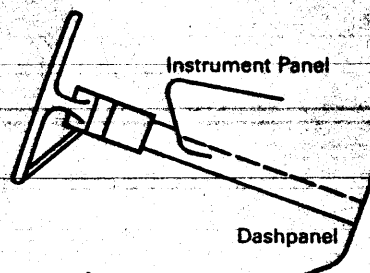
- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

VEHICLE INTERIOR SKETCHES

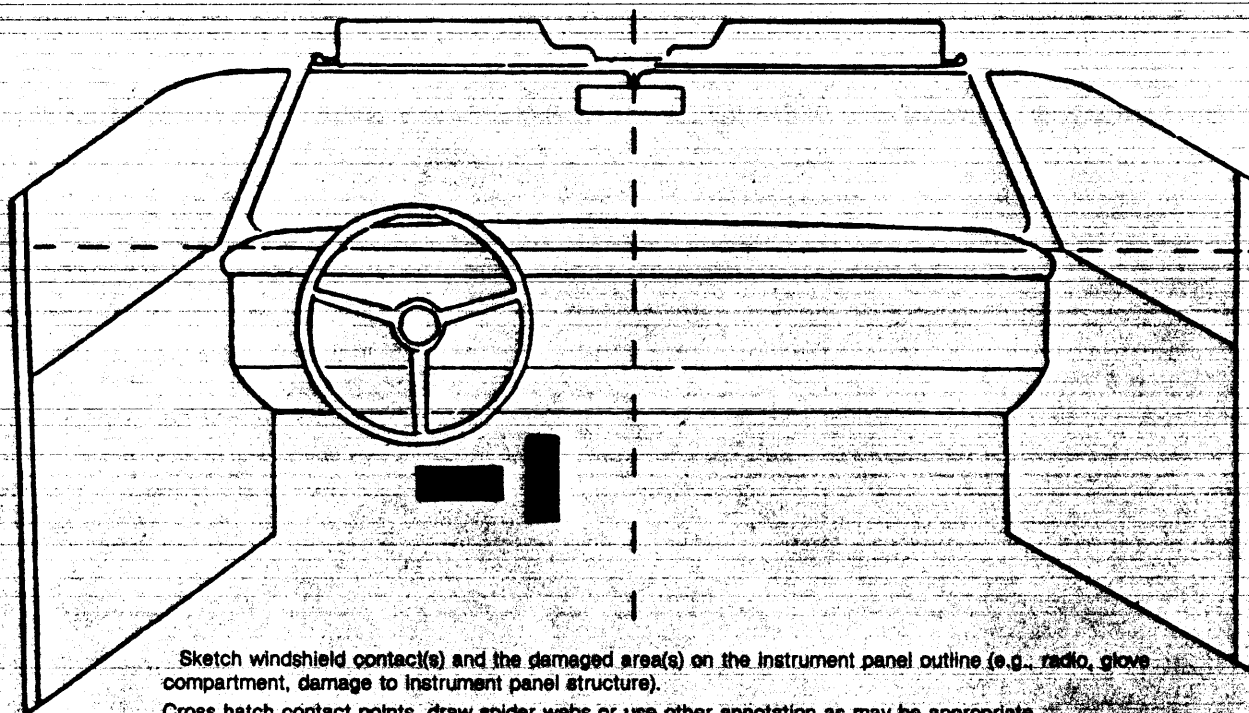
Note area of ejection/entrapment



DRIVER'S FACE CONTACTED AIR BAG,
NO EVIDENCE OF CONTACT



NO VISIBLE CONTACT POINTS



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

POINTS OF OCCUPANT CONTACT

| Contact | Interior Component Contacted | Occupant No. If Known | Body Region If Known | Supporting Physical Evidence | Confidence Level of Contact Point |
|---------|------------------------------|-----------------------|----------------------|------------------------------|-----------------------------------|
| A | 45 | 1 | FACE | NONE | 1 |
| B | | | | | |
| C | | | | | |
| D | | | | | |
| E | | | | | |
| F | | | | | |
| G | | | | | |
| H | | | | | |
| I | | | | | |
| J | | | | | |
| K | | | | | |
| L | | | | | |
| M | | | | | |
| N | | | | | |

CODES FOR INTERIOR COMPONENTS

FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify):

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify):

- (48) Child safety seat (specify):

- (49) Other interior object (specify):

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify):
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (37) Other right side object (specify):

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify):

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify):
- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify):

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify):

- (25) Left side window glass or frame

- (47) Interior loose objects

CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (4) Unknown

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

| | | Left | Center | Right |
|-----------------------|--------------|------|--------|-------|
| F I R S T | Availability | 1 | - | - |
| | Function | 1 | - | - |
| | Failure | 1 | - | - |

AIR BAGS

Air Bag System Availability/Function

- (0) Not equipped/not available
- (1) Air bag

Non-functional

- (2) Air bag disconnected (specify): _____

- (3) Air bag not reinstalled
- (9) Unknown

Air Bag System Deployment

- (0) Not equipped/not available
- (1) Air bag deployed during accident
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (9) Unknown

Did Air Bag System Fail?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____

- (9) Unknown

AUTOMATIC BELTS

Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts—type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)
- (3) Automatic belt use unknown
- (9) Unknown

Automatic (Passive) Belt System Type

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____

- (8) Other improper use of automatic belt system (specify): _____
- (9) Unknown

Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other automatic belt failure (specify): _____
- (9) Unknown

MANUAL RESTRAINTS

NOTES: Encode the applicable data for each seat position in the vehicle. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

| | | Left | Center | Right |
|--------|---------------|------|--------|-------|
| FIRST | Availability | 4 | - | 4 |
| | Use | 04 | - | - |
| | Failure Modes | 1 | - | - |
| SECOND | Availability | 4 | - | 4 |
| | Use | - | - | - |
| | Failure Modes | - | - | - |
| THIRD | Availability | | | |
| | Use | | | |
| | Failure Modes | | | |
| OTHER | Availability | | | |
| | Use | | | |
| | Failure Modes | | | |

Manual (Active) Belt System Availability

(08) Other belt used (specify):

(0) Not available

(1) Belt removed/destroyed

(2) Shoulder belt

(3) Lap belt

(4) Lap and shoulder belt

(5) Belt available — type unknown

(8) Other belt (specify):

(12) Shoulder belt used with child safety seat

(13) Lap belt used with child safety seat

(14) Lap and shoulder belt used with child safety seat

(15) Belt used with child safety seat — type unknown

(18) Other belt used with child safety seat (specify):

(9) Unknown

(99) Unknown if belt used

Manual (Active) Belt System Use

Manual (Active) Belt Failure Modes During Accident

(00) None used, not available, or belt removed/destroyed

(01) Inoperative (specify):

(02) Shoulder belt

(03) Lap belt

(04) Lap and shoulder belt

(05) Belt used — type unknown

(0) No manual belt used or not available

(1) No manual belt failure(s)

(2) Torn webbing (stretched webbing not included)

(3) Broken buckle or latchplate

(4) Upper anchorage separated

(5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

| | | | | | | |
|------------------------------------|--|--|--|--|--|--|
| Occupant Number | | | | | | |
| 1. Type of Child Safety Seat | | | | | | |
| 2. Child Safety Seat Orientation | | | | | | |
| 3. Child Safety Seat Harness Usage | | | | | | |
| 4. Child Safety Seat Shield Usage | | | | | | |
| 5. Child Safety Seat Tether Usage | | | | | | |
| 6. Child Safety Seat Make/Model | Specify Below for Each Child Safety Seat | | | | | |

1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):

- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

2. Child Safety Seat Orientation

- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight
- (01) Rear facing
- (02) Forward facing
- (03) Other orientation (specify):

- (04) Unknown orientation
- Designed for Forward Facing for This Age/Weight
- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

- (19) Unknown orientation
- Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight
- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage

4. Child Safety Seat Shield Usage

5. Child Safety Seat Tether Usage

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat
- Not Designed with Harness/Shield/Tether
- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used
- Designed with Harness/Shield/Tether
- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

- Unknown if Designed with Harness/Shield/Tether
- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used
- (99) Unknown if child safety seat used

6. Child Safety Seat Make/Model (Specify make/model and occupant number)

HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for each seat position in the vehicle. The attributes for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

| | | Left | Center | Right |
|--------|----------------------------|------|--------|-------|
| FIRST | Head Restraint Type/Damage | 3 | - | 3 |
| | Seat Type | 01 | - | 01 |
| | Seat Performance | 8 | | 1 |
| SECOND | Head Restraint Type/Damage | - | - | - |
| | Seat Type | 05 | - | 05 |
| | Seat Performance | 1 | | 1 |
| THIRD | Head Restraint Type/Damage | | | |
| | Seat Type | | | |
| | Seat Performance | | | |
| OTHER | Head Restraint Type/Damage | | | |
| | Seat Type | | | |
| | Seat Performance | | | |

Head Restraint Type/Damage by Occupant at This Occupant Position

- (0) No head restraints
- (1) Integral – no damage
- (2) Integral – damaged during accident
- (3) Adjustable – no damage
- (4) Adjustable – damaged during accident
- (5) Add-on – no damage
- (6) Add-on – damaged during accident
- (8) Other (specify): _____
- (9) Unknown

Seat Performance (This Occupant Position)

- (0) No seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks failed
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): _____

Seat Type (This Occupant Position)

- (00) No seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., van type)
- (09) Other seat type (specify): _____
- (99) Unknown

- (7) Combination of above (specify): _____
- (8) Other (specify): _____

- (9) Unknown LF SEAT TRACK JAMMED DUE TO FLOOR PAN DEFORMATION

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E. UNUSUAL OCCUPANT CONTACT PATTERN)

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indications that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

EJECTION No [☒] Yes []

Describe indications of ejection and body parts involved in partial ejection(s):

| Occupant Number | | | | | | |
|--|--|--|--|--|--|--|
| Ejection | | | | | | |
| (Note on Vehicle Interior Sketch) Ejection Area | | | | | | |
| Ejection Medium | | | | | | |
| Medium Status | | | | | | |

Ejection

- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

(7) Roof

(8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown

(5) Integral structure

(8) Other medium (specify):

(9) Unknown

Ejection Area

- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear

Ejection Medium

- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify):

Medium Status (Immediately Prior to Impact)

- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

ENTRAPMENT No [☒] Yes []

Describe entrapment mechanism:

Component(s):

(Note in vehicle interior diagram)

APPENDIX D

NASS Occupant Forms



OCCUPANT ASSESSMENT FORM

| | |
|---|---|
| <p>1. Primary Sampling Unit Number _____</p> <p>2. Case Number — Stratum <u>91-04</u></p> <p>3. Vehicle Number <u>01</u></p> <p>4. Occupant Number <u>01</u></p> <p style="text-align: center;">OCCUPANT'S CHARACTERISTICS</p> <p>5. Occupant's Age <u>25</u> Code actual age at time of accident. (00) Less than one year old (specify by month): _____ (97) 97 years and older (99) Unknown</p> <p>6. Occupant's Sex <u>1</u> (1) Male (2) Female (9) Unknown</p> <p>7. Occupant's Height <u>72</u> Code actual height to the nearest inch. (99) Unknown</p> <p>8. Occupant's Weight <u>176</u> Code actual weight to the nearest pound. (999) Unknown</p> <p>9. Occupant's Role <u>1</u> (1) Driver (2) Passenger (9) Unknown</p> <p>10. Occupant's Seat Position <u>11</u> Front Seat (11) Left side (12) Middle (13) Right Side (14) Other (specify): _____ (15) On or in the lap of another occupant Second Seat (21) Left side (22) Middle (23) Right Side (24) Other (specify): _____ (25) On or in the lap of another occupant Third Seat (31) Left side (32) Middle (33) Right Side (34) Other (specify): _____ (35) On or in the lap of another occupant Fourth Seat (41) Left side (42) Middle (43) Right Side (44) Other (specify): _____ (45) On or in the lap of another occupant (97) In or on unenclosed area (98) Other seat (specify): _____ (99) Unknown</p> | <p>11. Occupant's Posture <u>0</u> (0) Normal posture (1) Abnormal posture (specify): _____ (9) Unknown</p> <p style="text-align: center;">EJECTION/ENTRAPMENT</p> <p>12. Ejection <u>0</u> (0) No ejection (1) Complete ejection (2) Partial ejection (3) Ejection, unknown degree (9) Unknown</p> <p>13. Ejection Area <u>0</u> (0) No ejection (1) Windshield (2) Left front (3) Right front (4) Left rear (5) Right rear (6) Rear (7) Roof (8) Other area (e.g., back of pickup, etc.) (specify): _____ (9) Unknown</p> <p>14. Ejection Medium <u>0</u> (0) No ejection (1) Door/hatch/tailgate (2) Nonfixed roof structure (3) Fixed glazing (4) Nonfixed glazing (specify): _____ (5) Integral structure (8) Other medium (specify): _____ (9) Unknown</p> <p>15. Medium Status (Immediately Prior to Impact) <u>0</u> (0) No ejection (1) Open (2) Closed (3) Integral structure (9) Unknown</p> <p>16. Entrapment <u>0</u> (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.) (0) Not entrapped (1) Entrapped (9) Unknown</p> |
|---|---|

RESTRAINT SYSTEM AND SEAT EVALUATION**17. Manual (Active) Belt System Availability** 4

- (0) Not available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown
- (8) Other belt (specify): _____

(9) Unknown

18. Manual (Active) Belt System Use 04

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): _____

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify): _____

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify): _____
- (99) Unknown if belt used

19. Proper Use of Manual (Active) Belts 1

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____

- (8) Other improper use of manual belt system (specify): _____

(9) Unknown

20. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____

- (6) Broken retractor
- (7) Combination of above (specify): _____

- (8) Other manual belt failure (specify): _____

(9) Unknown

21. Air Bag System Availability/Function 1

- (0) Not equipped/not available
- (1) Air bag

Non-functional

- (2) Air bag disconnected (specify): _____

- (3) Air bag not reinstalled
- (9) Unknown

22. Air Bag System Deployment 1

- (0) Not equipped/not available
- (1) Air bag deployed during accident
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (9) Unknown

23. Did Air Bag System Fail? 1

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____

(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use 4

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): _____

- (8) Restrained, type unknown
- (9) Police indicated "unknown"

25. Head Restraint Type/Damage by Occupant at This Occupant Position 3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other specify: _____

(9) Unknown

26. Seat Type (This Occupant Position) 01

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., van type)
- (09) Other seat type (specify):

(99) Unknown

27. Seat Performance (This Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks failed
- (4) Seat track/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify):

(7) Combination of above (specify):

_____(8) Other (specify):

(9) Unknown

CHILD SAFETY SEAT28. Child Safety Seat Make/Model 000

- (000) No child safety seat
- Applicable codes are found in your NASS CDS Data Collection, Coding, and Editing Manual
- (997) Other make/model (specify):

(998) Unknown make/model

(999) Unknown if child safety seat used

29. Type of Child Safety Seat 0

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00

(00) No child safety seat

Designed for Rear Facing for This Age/Weight

- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):

(09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

(19) Unknown orientation

Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage 0032. Child Safety Seat Shield Usage 0033. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA31-OA33.

(00) No child safety seat

Not Designed with
Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed with Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed with Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES**34. Injury Severity (Police Rating)**2

- (0) O – No injury
- (1) C – Possible injury
- (2) B – Nonincapacitating injury
- (3) A – Incapacitating injury
- (4) K – Killed
- (5) U – Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment – Mortality3

- (0) No treatment
- (1) Fatal
- (2) Fatal – ruled disease

Nonfatal

- (3) Hospitalized
- (4) Transported and released
- (5) Treatment at scene – nontransported
- (6) Treatment later
- (8) Treatment – other (specify):

 (9) Unknown
36. Type of Medical Facility (for Initial Treatment)2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):

 (9) Unknown
37. Hospital stay06

- ____ Code number of days (up through 60)
that the occupant stayed in the hospital
- (00) Not hospitalized
 - (61) 61 days or more
 - (99) Unknown

38. Working Days Lost24

- ____ Code the number of days
(up through 60) that the occupant
lost from work due to the accident
- (00) No working days lost
 - (61) 61 days or more
 - (62) Fatally injured
 - (97) Not working prior to accident
 - (99) Unknown

39. Time to Death00

- ____ Code number of hours from time of
accident to time of death up through 24
hours. If time of death is greater than 24
hours, code number of days. (Note: 1 day =
31, 2 days = 32, ... n days = 30 + n up through
30 days = 60)
- (00) Not fatal
 - (96) Fatal – ruled disease
 - (99) Unknown

40. 1st Medically Reported Cause of Death00**41. 2nd Medically Reported Cause of Death**00**42. 3rd Medically Reported Cause of Death**00

- ____ Code the Occupant Injury from line
number(s) for the medically reported
injury(s) which reportedly contributed to
this occupant's death
- (00) Not fatal or no additional causes
 - (97) Other result (specify):

 (99) Unknown
43. Number of Recorded Injuries for This Occupant07

- ____ Code the actual number of
injuries recorded for this occupant.
- (00) No recorded injuries
 - (97) Injured, details unknown
 - (99) Unknown if injured

| | |
|--|--|
| <p>44. Automatic (Passive) Belt System Availability/ Function <u>0</u></p> <p>(0) Not equipped/not available (1) 2 point automatic belts (2) 3 point automatic belts (3) Automatic belts-type unknown</p> <p>Non-functional (4) Automatic belts destroyed or rendered inoperative (9) Unknown</p> | <p>47. Proper Use of Automatic (Passive) Belt System <u>0</u></p> <p>(0) Not equipped/not available/not used (1) Automatic belt used properly (2) Automatic belt used properly with child safety seat</p> <p>Automatic Belt Used Improperly (3) Automatic shoulder belt worn under arm (4) Automatic shoulder belt worn behind back (5) Automatic belt worn around more than one person (6) Lap portion of automatic belt worn on abdomen (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____</p> <p>(8) Other improper use of automatic belt system (specify): _____ (9) Unknown</p> |
| <p>45. Automatic (Passive) Belt System Use <u>0</u></p> <p>(0) Not equipped/not available/destroyed or rendered inoperative (1) Automatic belt in use (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____ (3) Automatic belt use unknown (9) Unknown</p> | <p>48. Automatic (Passive) Belt Failure Modes During Accident <u>0</u></p> <p>(0) Not equipped/not available/not in use (1) No automatic belt failure(s) (2) Torn webbing (stretched webbing not included) (3) Broken buckle or latchplate (4) Upper anchorage separated (5) Other anchorage separated (specify): _____ (6) Broken retractor (7) Combination of above (specify): _____ (8) Other automatic belt failure (specify): _____ (9) Unknown</p> |
| <p>46. Automatic (Passive) Belt System Type <u>0</u></p> <p>(0) Not equipped/not available (1) Non-motorized system (2) Motorized system (9) Unknown</p> | |

UPDATE CANDIDATE? NO [☒] YES []

OCCUPANT INJURY FORM INCLUDED WITH INITIAL SUBMISSION? NO [☒] YES []

*** STOP HERE ***
 IF THERE ARE NO RECORDED INJURIES
 (I.E., OA43 = 00,97,99)



U.S. Department of Transportation
National Highway Traffic Safety
Administration

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

OCCUPANT INJURY FORM

1. ~~Primary Sampling Unit Number~~ _____

3. Vehicle Number

01

2. Case Number ~~Stratum~~ 91-04

4. Occupant Number

01

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

| | Source of Injury Data | Body Region | Aspect | Lesion | System Organ | A.I.S. Severity | Injury Source | Injury Source Confidence Level | Direct/ Indirect Injury | Occupant Area Intrusion No. |
|------|-----------------------------|----------------|---------------|---------------|-----------------|--------------------|------------------|---|-------------------------------|--------------------------------|
| 1st | 5. <u>2</u> | 6. <u>E</u> | 7. <u>S</u> | 8. <u>C</u> | 9. <u>I</u> | 10. <u>1</u> | 11. <u>45</u> | 12. <u>1</u> | 13. <u>1</u> | 14. <u>00</u> |
| 2nd | 15. <u>2</u> | 16. <u>E</u> | 17. <u>S</u> | 18. <u>A</u> | 19. <u>I</u> | 20. <u>1</u> | 21. <u>45</u> | 22. <u>1</u> | 23. <u>1</u> | 24. <u>00</u> |
| 3rd | 25. <u>2</u> | 26. <u>E</u> | 27. <u>C</u> | 28. <u>C</u> | 29. <u>I</u> | 30. <u>1</u> | 31. <u>45</u> | 32. <u>1</u> | 33. <u>1</u> | 34. <u>00</u> |
| 4th | 35. <u>2</u> | 36. <u>E</u> | 37. <u>C</u> | 38. <u>A</u> | 39. <u>I</u> | 40. <u>1</u> | 41. <u>45</u> | 42. <u>1</u> | 43. <u>1</u> | 44. <u>00</u> |
| 5th | 45. <u>2</u> | 46. <u>E</u> | 47. <u>L</u> | 48. <u>C</u> | 49. <u>O</u> | 50. <u>1</u> | 51. <u>45</u> | 52. <u>1</u> | 53. <u>1</u> | 54. <u>00</u> |
| 6th | 55. <u>2</u> | 56. <u>E</u> | 57. <u>R</u> | 58. <u>C</u> | 59. <u>O</u> | 60. <u>1</u> | 61. <u>45</u> | 62. <u>1</u> | 63. <u>1</u> | 64. <u>00</u> |
| 7th | 65. <u>2</u> | 66. <u>C</u> | 67. <u>L</u> | 68. <u>C</u> | 69. <u>I</u> | 70. <u>1</u> | 71. <u>41</u> | 72. <u>1</u> | 73. <u>1</u> | 74. <u>00</u> |
| 8th | 75. <u> </u> | 76. <u> </u> | 77. <u> </u> | 78. <u> </u> | 79. <u> </u> | 80. <u> </u> | 81. <u> </u> | 82. <u> </u> | 83. <u> </u> | 84. <u> </u> |
| 9th | 85. <u> </u> | 86. <u> </u> | 87. <u> </u> | 88. <u> </u> | 89. <u> </u> | 90. <u> </u> | 91. <u> </u> | 92. <u> </u> | 93. <u> </u> | 94. <u> </u> |
| 10th | 95. <u> </u> | 96. <u> </u> | 97. <u> </u> | 98. <u> </u> | 99. <u> </u> | 100. <u> </u> | 101. <u> </u> | 102. <u> </u> | 103. <u> </u> | 104. <u> </u> |

Contusions of both upper eyelids (AIS-1), Air bag

Small abrasions of the forehead and eyebrow areas (AIS-1), Air bag

Small contusions of the forehead and eyebrow areas (AIS-1), Air bag

Small contusions of the nose and bridge of the nose (AIS-1), Air bag

Small abrasions of the nose and bridge of the nose (AIS-1), Air bag

Bilateral vitreous hemorrhage behind the iris in the jelly part of the eye (AIS-0),

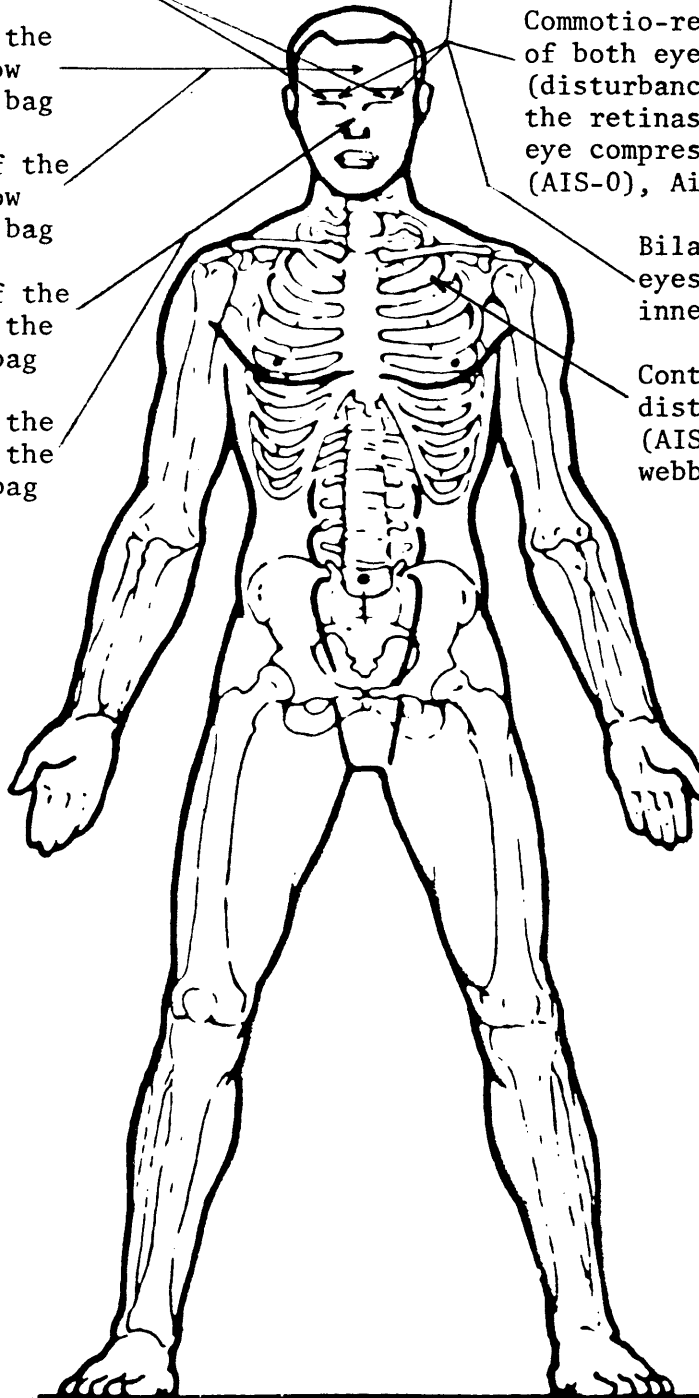
Air bag

Comotio-retinae of both eyes (disturbance of the retinas from eye compression (AIS-0), Air bag

AGE 25
SEX Male
WT. 176 lbs.
HT. 72"

Bilateral hyphema of the eyes (hemorrhaging of the inner eye) (AIS-0), Air bag

Contusion of the left chest, distal to the shoulder (AIS-1), Shoulder belt webbing



SOURCE OF INJURY DATA**OFFICIAL**

- (1) Autopsy records with or without hospital medical records
- (2) Hospital medical records other than emergency room (eg. discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): _____
- (9) Police

INJURY SOURCE**FRONT**

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add-on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): _____

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): _____
- (25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): _____

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): _____
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, roof side rail
- (37) Other right side object (specify): _____

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): _____

- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify): _____

- (47) Interior loose objects
- (48) Child safety seat (specify): _____

- (49) Other interior object (specify): _____

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): _____

EXTERIOR OF OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): _____
- (68) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): _____

- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): _____

- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): _____

- (83) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): _____

- (86) Unknown vehicle or object

NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): _____
- (97) Injured, unknown source

INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

OCCUPANT INJURY CLASSIFICATION**O.I.C. Body Region**

- (M) Abdomen
- (Q) Ankle-foot
- (A) Arm (upper)
- (B) Back-thoracolumbar spine
- (C) Chest
- (E) Elbow
- (F) Face
- (R) Forearm
- (H) Head-skull
- (U) Injured, unknown region
- (K) Knee
- (L) Leg (lower)
- (Y) Lower limb(s) (whole or unknown part)
- (N) Neck-cervical spine
- (P) Pelvic-hip
- (S) Shoulder
- (T) Thigh
- (X) Upper limb(s) (whole or unknown part)
- (O) Whole body

(W) Wrist-hand

Aspect of Injury

- (A) Anterior-front
- (B) Bilateral (rib fracture only).
- (C) Central
- (I) Inferior-lower
- (U) Injured, unknown aspect
- (L) Left
- (P) Posterior-back
- (R) Right
- (S) Superior-upper
- (W) Whole region

Lesion

- (A) Abrasion
- (M) Amputation
- (V) Avulsion
- (B) Burn
- (K) Concussion
- (C) Contusion
- (N) Crush

(G) Detachment, separation

- (D) Dislocation
- (F) Fracture
- (Z) Fracture and dislocation
- (U) Injured, unknown lesion
- (L) Laceration
- (O) Other
- (P) Perforation, puncture
- (R) Rupture
- (S) Sprain
- (T) Strain
- (E) Total severance, transection

System/Organ

- (W) All systems in region
- (A) Arteries-veins
- (B) Brain
- (D) Digestive
- (E) Ears
- (O) Eye
- (H) Heart
- (U) Injured, unknown system

(I) Integumentary

- (J) Joints
- (K) Kidneys
- (L) Liver
- (M) Muscles
- (N) Nervous system
- (P) Pulmonary-lungs
- (R) Respiratory
- (S) Skeletal
- (C) Spinal cord
- (Q) Spleen
- (T) Thyroid, other endocrine gland
- (G) Urogenital
- (V) Vertebrae

Abbreviated Injury Scale

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity